

**REPORTABLE
INFECTIOUS DISEASES
IN
KANSAS

2001 SUMMARY**



September, 2002

Kansas Department of Health and Environment
Division of Health
Bureau of Epidemiology and Disease Prevention
1000 S.W. Jackson Street, Suite 210
Topeka, Kansas 66612-1274
Telephone (785) 296-2951
Fax (785) 291-3775

Disease Reporting and Public Health Emergencies:
Toll-Free Phone 1-877-427-7317
Toll-Free Fax 1-877-427-7318

Website: www.kdhe.state.ks.us/bedp

Table of Contents	Page
Introduction	1
Selected reportable diseases in Kansas bar diagram	7
Section I - Disease Summaries	
Acquired Immunodeficiency Syndrome (AIDS) and Human Immunodeficiency Virus Infection (HIV)	10
Amebiasis	14
Anthrax	16
Brucellosis	18
Campylobacteriosis	20
Chlamydia	22
Cryptosporidiosis	25
Ehrlichiosis	27
Encephalitis, Infectious	29
Enteropathogenic <i>E. coli</i> (including hemolytic uremic syndrome)	31
Giardiasis	33
Gonorrhea	35
<i>Haemophilus influenzae</i> , invasive disease	38
Hantavirus Pulmonary Syndrome	40
Hepatitis A	42
Hepatitis B	45
Hepatitis C	51
Hepatitis D	57
Influenza	59
Lead Poisoning, Pediatric	62
Legionellosis	65
Listeriosis	67
Lyme Disease	69
Malaria	72
Measles	74
Meningitis, Bacterial	76
Meningococcal Disease	78
Mumps	80
Pertussis (Whooping Cough)	82
Rabies, Animal	84
Rocky Mountain Spotted Fever	87
Rubella	89
Salmonellosis (non-typhoidal)	91
Shigellosis	94
Streptococcal invasive disease	96
Syphilis	98
Tetanus	101

Toxic shock syndrome, streptococcal and staphylococcal	103
Tuberculosis	105
Tularemia	108
Typhoid Fever	110
Reportable diseases with no cases reported in 2001	112

Section II - Special Projects

Antimicrobial susceptibility patterns in Kansas	115
Bioterrorism	118
Hepatitis C in Kansas	119
Norwalk-like virus in Kansas	121
Retrospective Immunization Coverage Survey	123

Section III - Appendices

List of reportable diseases in Kansas, 2001	127
List of reportable diseases in Kansas, 2002	130
Kansas Reportable Disease Form	131
Map of Kansas	132
Reportable diseases by year in Kansas, 1992 - 2001	133
County abbreviations	136
Reportable diseases by county in Kansas, 2001	137
Publications on disease control in Kansas, 2001	144
References	145

INTRODUCTION

Purpose and format of this report

This is the tenth annual summary of reportable diseases by the Kansas Department of Health and Environment (KDHE). The purpose of the report is to provide useful information on notifiable infectious diseases in Kansas for health care providers, public health workers and policy makers.

The report is divided into three sections. Section I presents summaries of 42 reportable diseases or conditions of public health importance in Kansas. Each of the diseases or conditions is presented with a brief overview of the disease or condition, laboratory tests commonly used for diagnosis, and the surveillance case definition. A summary of the disease in Kansas, including key statistics and trends, is supplemented by tables and graphs. Only cases newly reported by February 28, 2002 that meet a surveillance definition for a confirmed case are presented here. Rates have been calculated from 2000 census estimates to adjust for population size and allow for more meaningful interpretation of the data. Rates by demographic characteristics and proportional changes from 2000 are reported only when there were more than 50 cases of a disease reported in the state. Whenever possible, information on disease trends for the United States has been included for comparison with Kansas trends. If the total number of cases in the state was less than 5, then only limited demographic information is presented (to ensure confidentiality of the patients).

Disease incidence for urban and rural areas has been included for many diseases. Urban counties were defined as counties with a

population density of 150 or more persons per square mile, and represent the four largest metropolitan areas in the state [Kansas City (Johnson and Wyandotte Counties), Wichita (Sedgwick County), Topeka (Shawnee County), and Lawrence (Douglas County)], which account for 49% of the population in the state. The remaining 100 counties in the state are classified as rural for the purposes of this report.

Data concerning race and ethnicity were collected uniformly for most diseases as follows: Race - American Indian/Alaska Native, Asian/Pacific Islander, Black, White and Ethnicity - Hispanic, non-Hispanic (regardless of race). For AIDS/HIV, STD, and TB, information was collected using one variable combining race and ethnicity as American Indian/Alaska Native, Asian/Pacific Islander, Black non-Hispanic, White non-Hispanic, or Hispanic. Additionally, although the recommended standard for classifying a person's race or ethnicity is based on self-reporting, this might not always be followed.

Section II includes special studies and reports (a new feature introduced this year). Section III provides the list of reportable diseases during 2001, a summary of cases of selected conditions by year for 1992-2001, and a summary of cases by county for 2001. Also included are a list of county abbreviations for use with Table 2, a map of Kansas with county names, and a list of publications on disease control from KDHE in 2001.

Disease reporting in Kansas

Selected diseases are reportable by law in Kansas by health care providers, laboratories and hospitals (see Section III for listing). Reports of infectious diseases are usually first

sent to local health departments, which are responsible for investigation and to provide basic public health interventions such as administering immune globulin to a household contact of a person with hepatitis A or treating sexual contacts of a person with gonorrhea.

Reports are then sent to the Bureau of Epidemiology and Disease Prevention within KDHE for review. After reports have been entered into the Kansas Integrated Electronic Disease Surveillance System (also known as HAWK), weekly summaries are forwarded to the Centers for Disease Control and Prevention (CDC) for inclusion in the Morbidity and Mortality Weekly Report. The final step in the surveillance system occurs when CDC sends selected data to the World Health Organization.

HAWK is a central, statewide database of reportable diseases which can be accessed remotely by authorized public health officials through the Internet. To protect patient confidentiality, HAWK has external and internal security structures in place. Users can report disease occurrence efficiently, and generate summary statistics and reports to assist them in evaluating the overall effectiveness of public health efforts in their areas. Twenty nine Kansas counties currently participate in the HAWK system.

Surveillance for influenza follows a different model. During the 2001-2002 influenza season, 23 physicians participated in the statewide sentinel physician-based active surveillance system. Offices were contacted weekly by telephone to determine the number of patients seen with influenza-like illness by four age groups and total patient visits for all reasons. To compare regional activity, aggregate information from Kansas is sent

weekly to CDC. This system plays a key role in monitoring influenza in the United States.

In collaboration with the Council of State and Territorial Epidemiologists (CSTE), CDC publishes Case Definitions for Public Health Surveillance to provide uniform criteria for reporting cases to increase the specificity of reporting and improve the comparability of diseases reported from different geographic areas. The CDC/CSTE surveillance case definitions use a combination of clinical, laboratory, and epidemiologic criteria. Those case definitions were revised in 1997 and can be found on the web at <http://www.cdc.gov/mmwr/preview/mmwrhtml/00047449.htm>.

The usefulness of public health surveillance data depends on its uniformity, simplicity, and timeliness. The case definitions contained in this report follow the CDC/CSTE surveillance definitions for disease reporting and should not be confused with clinical diagnoses. Use of additional clinical, epidemiologic, and laboratory data may enable a physician to diagnose a disease even though the formal, standardized surveillance case definition may not be met.

Important disease trends and highlights in 2001

In 2001, Kansas had three outbreaks of hepatitis A. The first outbreak involved ten cases among middle school-aged children in Harvey County. During the second outbreak which occurred in south central Kansas, 113 cases of hepatitis A were diagnosed and reported to KDHE. Eighty-five of these cases lived in Reno County and the other 28 cases lived in Barton, Butler, McPherson, Sedgwick, and Sumner counties. This second

outbreak was a community-based outbreak where over 90% of the cases were associated with illegal drug use. During the south central Kansas outbreak, more than 750 contacts were identified and treated along with 2,800 people from two patron recalls. Epidemiologists at KDHE conducted active and passive surveillance with area physicians. Inspectors from the KDHE Bureau of Consumer Health visited over 300 restaurants in Reno County and educated the employees about hepatitis A, proper hand washing techniques, and rules prohibiting bare hand contact with ready-to-eat food. The third outbreak was a foodborne outbreak in Shawnee County. Nine cases of hepatitis A were diagnosed and associated with a restaurant where an infected food worker was employed.

The first confirmed case of rubella since 1998 occurred in 2001. It was probably acquired outside the state. Reported confirmed pertussis cases declined from 17 in 2000 to 11 in 2001; however, pertussis remains the vaccine-preventable disease with the highest number of reported cases. The incidence of potential pertussis cases investigated in Kansas increased from the previous year. Immunization Program staff spent a considerable amount of time investigating case reports of pertussis in 2001. This included pertussis contact tracking and providing pertussis preventive education to patients, contacts and the public. There were two reported cases of tetanus and mumps. No cases of diphtheria, polio, or measles were reported in 2001. Acute hepatitis B cases declined from 27 in 2000 to 14 in 2001.

Kansas reported 80 cases of active tuberculosis (TB) disease in 2001, up from 77 in 2000. In Kansas during 2001, the state's major metropolitan areas again reported the

majority of cases of TB. Sedgwick County once again reported the highest number of new cases of active TB disease with 32. Forty-six (58%) of the state's cases were among males and 34 (42%) were among females. In 2001, six cases were reported among children under the age of 14, compared to five cases in 2000. Nineteen cases were reported for the age group 15-24; 20 for the age group 25-44; 17 for the age group 45-64; and 18 among individuals over the age of 65. During 2001, there were two reported case of HIV co-infection and two cases of multi-drug resistant TB in the state.

The Bureau of Epidemiology Disease Prevention in collaboration with Wichita-Sedgwick County Department of Community Health, and CDC investigated 18 TB cases that occurred from 1994 to 2000 among women with a history of working as dancers in adult entertainment clubs and persons who were close contacts. Of the 18 TB cases, 12 reported use of cocaine, crack cocaine, or amphetamines. Also, 10 of the adult TB cases had been incarcerated at some time during 1994-2000. Given the high rate of incarceration among these case-patients in local correctional facilities, there is risk for exposure to *Mycobacterium tuberculosis* among correctional facility employees and inmates.

Forty-four cases of early syphilis were reported from January 1, 2001 to December 31, 2001. This is a three-fold increase over the 15 cases reported over the same period in 2000. The increase of early syphilis cases can be attributed to two outbreaks within Topeka and Wichita. The Topeka outbreak accounted for 19 cases (43%) of all early syphilis in Kansas for 2001. These cases evolved around commercial sex workers and

methamphetamine/cocaine usage. The Wichita outbreak, which consisted of 10 cases (23%) of all early syphilis, was linked to crack (cocaine) usage and sex for drugs/money. Kansas reported two cases of presumptive congenital syphilis in 2001.

For the year, 2,761 cases of gonorrhea were reported to the state. This represented a one percent (34 case) decrease compared to last year. This was the first decrease in gonorrhea since 1996. Based on age reporting, young adults continued to have the highest rates of gonococcal infections; 35% (953) in the 20-24 age group, and 29% (808) by the 15-19 age group. Combined, both groups accounted for 64% (1,761) of all reported morbidity in 2001. Like syphilis, gonorrhea is concentrated in urban areas of the state.

Chlamydia continued to be the most commonly reported disease in Kansas. For the year, 6,172 cases of chlamydia were reported statewide, representing a two percent (115 case) increase from the previous year. Reported chlamydia disproportionately affected females in their childbearing years. Forty percent (2,459) of all reported cases occurred in the 20-24 age group. This is followed by the 15-19 age group, which accounted for 38% (2,327) of infections. Combined, the 15-24 age group accounted for 78% (4,786) of all chlamydia infections reported in 2001. Over 80% of reported cases occurred among females. This gender disparity reflects the focus of chlamydia detection activities in the state which target females.

Racial and ethnic minorities are disproportionately represented among cases of the three major reportable bacterial STDs, mirroring national trends. This may reflect

reporting bias (e.g., African-Americans may use public STD clinics more often for health care and be more likely to be screened or reported if positive). Both syphilis and gonorrhea infections are largely confined to the urban areas of the state. At least one case of chlamydia occurred in 90 of the 105 counties in Kansas. This distribution also reflects national trends. The majority of syphilis cases are reported from public STD clinics, whereas chlamydia and gonorrhea infections are reported from private physicians. Nearly 66% of reported bacterial STD reports are from private providers rather than publicly funded STD and family planning clinics.

The HIV/STD Program screened 3,740 persons who visited STD clinics in the state infected with or exposed to HIV and had associated risk factors that included: IV drug use, needle sharing, multiple sex partners, men who have sex with men, current or previous STD diagnosis. A total of 4,474 of the STD patients received HIV pretest counseling in 2001. This represents a 14 percent (737) decrease from the 5,211 individuals counseled in 2000. Of the 150 HIV positive patients investigated, 101 were located and received prevention case referral services from disease intervention specialists. Of the total number screened for HIV infection, six patients were positive, consistent with a six-year trend of diagnosed HIV cases in the state.

The number of reported Kansas AIDS cases decreased from 2000 through 2001, as occurred in a number of other states. All of the reported AIDS cases in 2001 were diagnosed less than one year after their initial HIV diagnosis. This means many people are being tested late in the course of their

infection and may indicate missed opportunities for prevention and control.

Enteric infections (salmonellosis, shigellosis and giardiasis) continued to be reported in large numbers. The protracted, year-long shigellosis outbreak in several Northeast Kansas daycare centers was finally brought under control in 2001 through concerted proactive prevention activities of BEDP field staff in collaboration with the local health departments in the region. A total of 346 investigations were associated with the outbreak which started in the spring of 2000. Ten foodborne outbreaks of gastrointestinal illness were reported and formally investigated by Epidemiologic Services during 2001. Five of the foodborne illness outbreaks were attributed to Norwalk-like virus (calicivirus), one to *Salmonella norwich*, and one to hepatitis A. No causative agent was positively identified in the remainder of the foodborne illness outbreaks.

There were ethnic disparities in some specific reported morbidities during 2001 in the state. Enteric infections were disproportionately higher among Hispanics than non-Hispanics for shigellosis (9.0 versus 1.4); salmonellosis (10.6 versus 6.9) and campylobacteriosis (12.2 versus 6.8) ; however the ethnic-specific rate of parasitic giardiasis was higher among non-Hispanics than in Hispanics (4.7 versus 2.7). Similarly, there were ethnic disparities in reported hepatitis morbidity. The Hispanics experienced a higher infection rate than non-Hispanics (8.0 versus 5.9), however, the non-Hispanic population had more than twice the reported infection rate of chronic hepatitis B (8.8) and hepatitis C (21.0) than Hispanics, (3.7 and 14.9, respectively). There was geographic disparity in reported streptococcal invasive infection, with an urban rate of 4.5

versus a rural rate of 2.8 per 100,000 population. However, residential childhood lead poisoning was seen more in rural areas, (142.5 versus 59.1 per 100,000 in urban areas), a more than two-fold increase.

Acts of terrorism on September 11, 2001, followed by the discovery of anthrax sent through the mail, added a new dimension to disease outbreak investigation and reporting. BEDP staff responded to more than 1,000 telephone calls for information on anthrax exposure, testing, diagnosis and treatment. 202 nasal swabs were collected from Kansas residents who had visited the Hart Senate Office Building in Washington, D.C. or worked in the mail equipment repair center in Topeka. Ninety-six monitoring samples were collected at the Docking State Office Building from Department of Revenue mail machines. Another 60 environmental samples were collected from mail, spilled powders and suspicious packages at various locations. All samples collected in Kansas tested negative for anthrax.

Interpreting the data

When interpreting the data in this report, it is important to remember that disease reporting is incomplete and often varies by disease. For example, reporting of AIDS cases is estimated to be 90% complete whereas reporting of salmonellosis is estimated to be 3-5% complete. Absolute numbers are less meaningful than trends when interpreting the data. However, trends can be influenced by changes in case definitions, in reporting patterns, or by random fluctuations. It is also important to note that since 59% (62/105) of counties in Kansas have populations less than 10,000, it is possible to have high rates of disease in these counties even if only very few

cases are reported.

Acknowledgments

We would like to thank all the physicians, physician assistants, nurses, hospitals, laboratorians, county health department staff, and others who participated in reportable disease surveillance during 2001. We would also like to acknowledge the Bureau of Epidemiology and Disease Prevention staff for their support.

Useful web sites

This report is available on the internet at:
www.kdhe.state.ks.us/epi/#summaries

Health education facts sheets and brochures that address public health can be found at:
www.kdhe.state.ks.us/health-info/#hefindex

Kansas County Health Profile, 1999
www.kdhe.state.ks.us/olrh/index

Kansas Food Protection and consumer Safety:
www.kdhe.state.ks.us/fpcs

AIDS/STD:
www.kdhe.state.ks.us/hiv-std

Immunization:
www.kdhe.state.ks.us/immunize

Influenza:
www.cdc.gov/ncidod/diseases/flu/weekly.htm

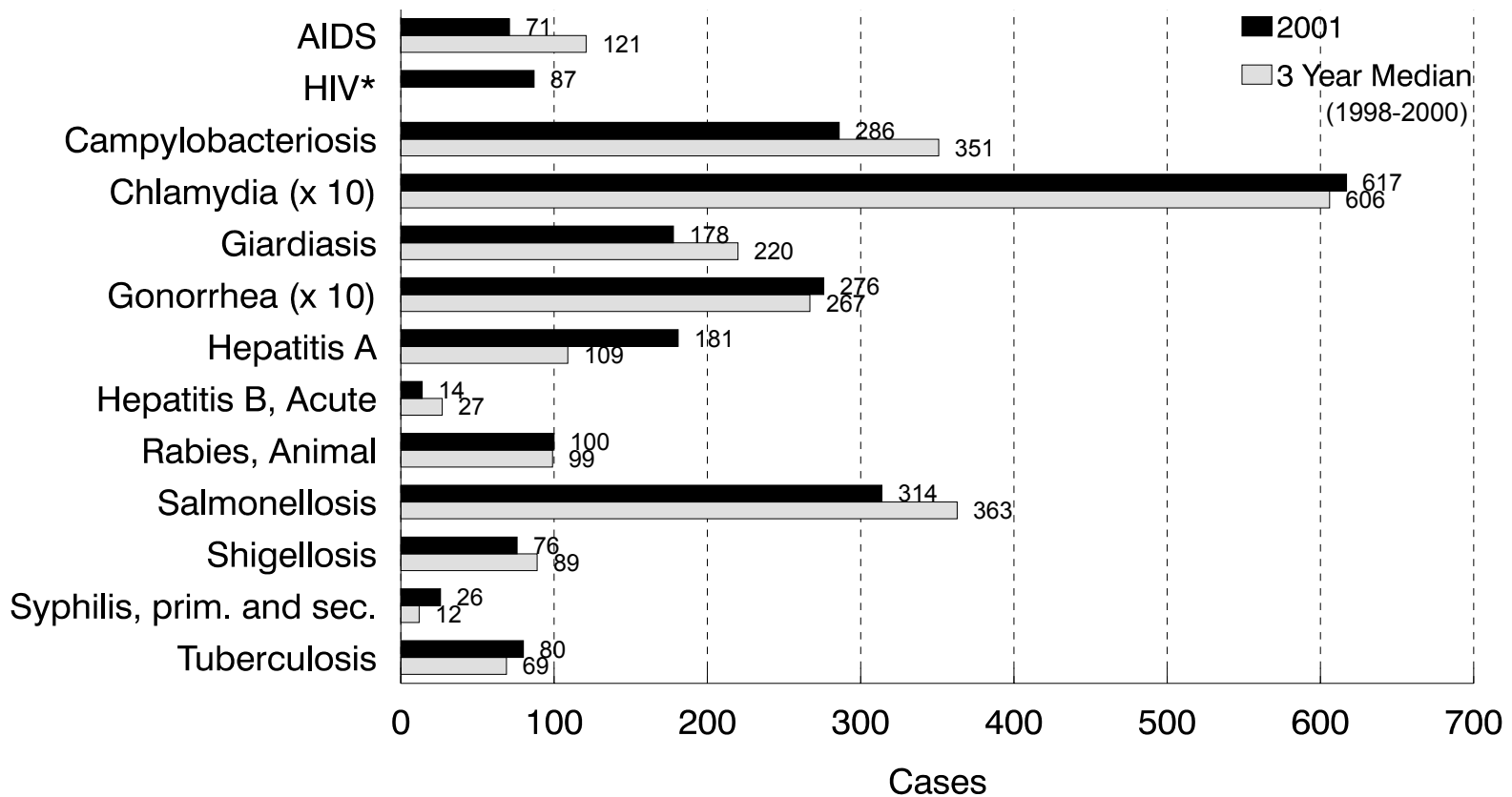
International Travel:
www.cdc.gov/travel

Lead:
www.kdhe.state.ks.us/lead

TB:
www.kdhe.state.ks.us/tb

Vaccines:
www.cdc.gov/od/nvpo/main.htm

Selected Reportable Diseases in Kansas, 2001



*HIV infection became a reportable condition in Kansas as of July, 1999

SECTION I

DISEASE

SUMMARIES

ACQUIRED IMMUNODEFICIENCY SYNDROME (AIDS) AND HUMAN IMMUNODEFICIENCY VIRUS INFECTION (HIV)

AIDS is a severe, life-threatening condition which was first recognized as a distinct syndrome in 1981. It is caused by a virus, human immunodeficiency virus (HIV), that damages the body's immune system and destroys its ability to fight illness. AIDS itself doesn't kill the patient; rather it allows other infections and diseases to invade the body, and it is those opportunistic diseases that kill. Most people infected with HIV develop detectable antibodies within 1-3 months after infection, but may remain free of signs or symptoms for several months to years. Clinical illness may include lymphadenopathy, chronic diarrhea, weight loss, fever, and fatigue. The severity of HIV-related illness is, in general, directly related to the degree of immune dysfunction. The disease can be transmitted from person to person through unprotected sexual contact, sharing HIV-contaminated needles and syringes, from mother to infant, and transfusion of infected blood or its components. No vaccine exists for HIV infection, but considerable progress has been made in the development of anti-retroviral therapies which slow viral progression and significantly reduce the amount of virus in an infected person.

HIV infection and AIDS are reportable in Kansas. A person previously reported as HIV infected is reported again as an AIDS case if an AIDS diagnosis is made.

Laboratory Criteria for Surveillance Purposes

- AIDS: Detection of either a) CD4+ T-lymphocytes/ L <200; b) a CD4+ T-lymphocyte percentage of total lymphocytes of <14%; or c) any of 24 specific diseases or syndromes.
- HIV infection: Western blot confirmed (positive/reactive) antibody test, HIV p24 antigen test, HIV nucleic acid (DNA or RNA) detection, HIV isolation (viral cultures).

Surveillance Case Definitions

- AIDS:
- All HIV-infected adolescents aged 13 years and adults who have either (a) a CD4+ t-lymphocyte count <200 or <14% or (b) been diagnosed with one of the AIDS defining opportunistic infections. Complete information on the case definition can be found in MMWR 1997; 46 (No. RR-10).
 - The AIDS surveillance case definition for children aged <13 years includes the clinical conditions listed in the AIDS surveillance case definition found in MMWR 1997; 46 (No. RR-10).
- HIV:
- Laboratory criteria must be met.

Note:

- The case definitions for adult and pediatric HIV infections have been expanded effective 1/1/2000. It includes HIV nucleic acid (DNA or RNA) detection tests (viral load tests) that were not available when the AIDS case definition was revised in 1993. The revised HIV case definitions in adults and children are outlined in MMWR 1999; 48 (No. RR-13: 1-31).
- More detailed information on AIDS is available in the Kansas AIDS/STD Update, the “HIV/AIDS Epidemiologic Profile”, and www.kdhe.state.ks.us/hiv-std.

Epidemiology and Trends

AIDS

2001 Case Total	71
Kansas rate	2.3 per 100,000
U.S. rate (2000)	15.0 per 100,000

Rate by gender

Female	0.6 per 100,000
Male	4.7 per 100,000

Rate by race/ethnicity

White	1.6 per 100,000
African-American	13.0 per 100,000
Asian/Pacific Islander	2.1 per 100,000
Native American	4.0 per 100,000
Hispanic	5.8 per 100,000

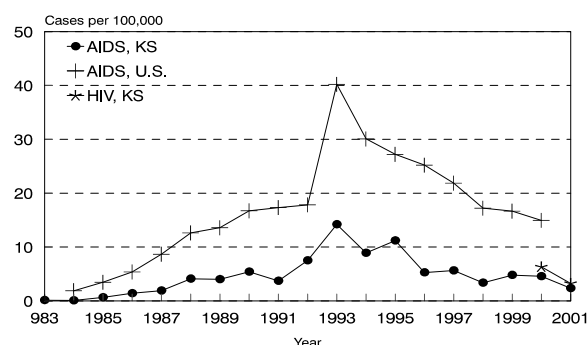
Rate by geographic area

Urban	3.8 per 100,000
Rural	1.5 per 100,000

In 2001, 71 cases of AIDS were reported in Kansas, reflecting a 41% decrease from the 121 cases reported in 2000 and continuing the decrease trend in reported cases since 1995. There were seven reported deaths (9%) in 2001 and in 1999. Not all deaths among AIDS cases were the result of HIV infection.

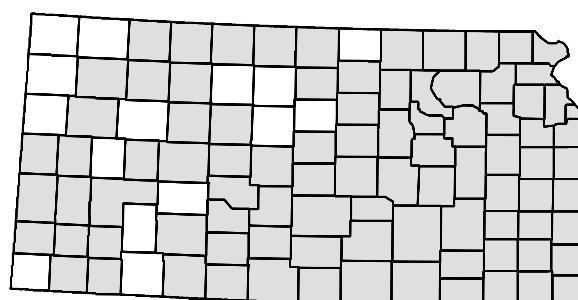
The cases ranged in age from 21 to 60 years of age; the median age was 38 years. The majority of AIDS cases in 2001 were among males (89%). Non-Whites, who represent less than 10% of the state's population, accounted for 46% of AIDS cases in 2001. Wyandotte County had the largest number of cases (24%). The four largest metropolitan areas which account for 49% of the state population, comprised 72% of the total number of cases.

AIDS/HIV incidence rate by year of report
Kansas, 1983-2001



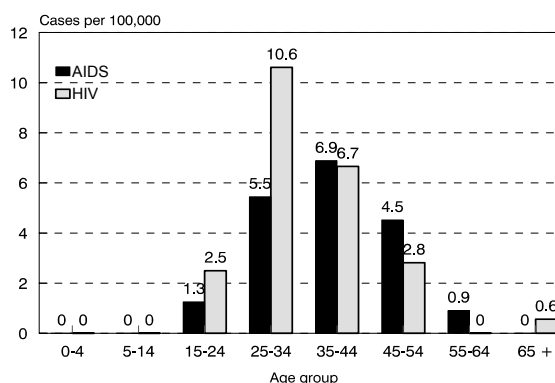
Comment: The introduction of a new case definition accounts for the large number of cases in 1993.

Counties affected by AIDS/HIV
Kansas, diagnosed 1981-2000



Shaded counties have reported or
treated at least one person with AIDS or HIV

AIDS/HIV rate by age group
Kansas, 2001



Of the 71 cases reported in 2001, 63 were men and 8 were female. Men who have sex with men (MSM) account for the largest number of AIDS cases (49%), followed by cases attributable to high risk heterosexual contact* (14%), injection drug use (13%), and injection drug use with homosexual contact (11%). The most common risk factor among women was high risk heterosexual contact (63%), and among men unprotected male to male sexual contact (56%). No pediatric cases were reported.

HIV

<i>2001 Case Total</i>	87
Kansas rate	3.2 per 100,000
U.S. rate (1999)	N/A

Rate by gender

Female	1.3 per 100,000
Male	5.3 per 100,000

Rate by race/ethnicity

White	2.2 per 100,000
African-American	13.0 per 100,000
Asian/Pacific Islander	2.1 per 100,000
Native American	4.0 per 100,000
Hispanic	13.0 per 100,000

Rate by geographic area

Urban	4.4 per 100,000
Rural	2.1 per 100,000

Data presented on HIV **DO NOT** include information on individuals that were diagnosed with AIDS during the same period; information on those individuals is analyzed and presented above.

In 2001, there were 87 HIV cases reported, a 48% decrease from the 168 cases reported in

Interval between first HIV positive test and AIDS diagnosis, Kansas, 2001

Interval	2001
0 - 30 days	33 (83%)
31 - 180 days	5 (13%)
181 - 365 days	2 (5%)
Total	40 (100%)

Percentages may not add up to 100 due to rounding.

2000. The cases ranged in age from 18 to 68 years of age; the median age was 33 years. Males comprised 80% of HIV cases (70 males, 17 females). Non-Whites, who represent less than 10% of the state's population, accounted for 41% of HIV cases in 2001. The highest number of reports were for individuals living in areas with highest population density (i.e., Johnson, Shawnee, Sedgwick, and Wyandotte counties).

Men who have sex with men account for the largest number of HIV cases (51%), followed by cases attributable to high risk heterosexual contact (10%), and injection drug use (7%). The most common risk factor among women was high risk heterosexual contact* (35%), and among men unprotected male to male sexual contact (63%). No pediatric cases were reported in 2001.

*High risk heterosexual contact is sex between a male and a female. It is defined as the risk behavior of unprotected sex with a bisexual male, injection drug user, or person known to be HIV positive.

AMEBIASIS

Amebiasis is an infection with the protozoan parasite *Entamoeba histolytica*. Most infections are asymptomatic but may become clinically important under certain circumstances such as with a liver abscess. Intestinal disease varies from acute or fulminating dysentery with fever, chills, and bloody or mucoid diarrhea (amebic dysentery), to mild abdominal discomfort with diarrhea containing blood or mucus alternating with periods of constipation or remission. The incubation period varies from a few days to several months or years; commonly 2-4 weeks. Transmission occurs mainly by ingestion of fecally contaminated food or water containing amebic cysts, or sexually by oral-anal contact. The cysts are relatively chlorine resistant and are not reliably killed by routine drinking water chlorination processes, but sand or diatomaceous earth filtration removes all cysts.

Laboratory Criteria for Surveillance Purposes

Intestinal amebiasis:

- Demonstration of *E. histolytica* cysts or trophozoites in stool, ***or***
- Demonstration of trophozoites in tissue biopsy or ulcer scrapings by culture or histopathology.

Extraintestinal amebiasis:

- Demonstration of *E. histolytica* trophozoites in extraintestinal tissue.

Surveillance Case Definitions

- ***Confirmed, intestinal amebiasis:*** clinically compatible illness that is laboratory confirmed.
- ***Confirmed, extraintestinal amebiasis:*** a parasitologically confirmed infection of extraintestinal tissue, or among symptomatic persons (with clinical or radiographic findings consistent with extraintestinal infection), demonstration of specific antibody against *E. histolytica* as measured by indirect hemagglutination or other reliable immuno-diagnostic test (e.g., enzyme-linked immuno-absorbent assay).

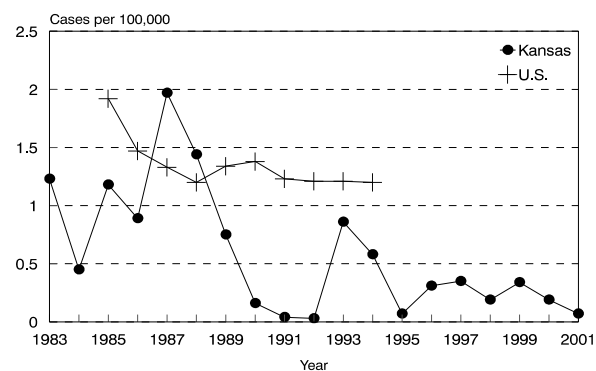
Note: Amebiasis is not a nationally notifiable disease.

Epidemiology and Trends

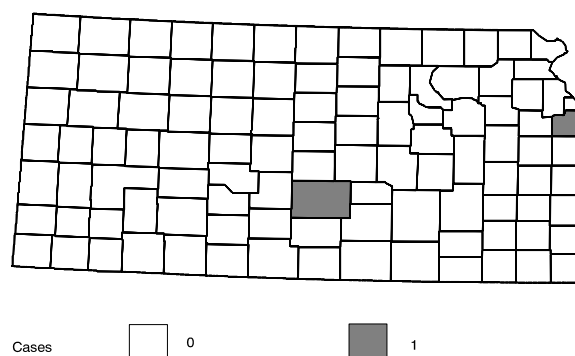
2001 Case Total	2
Kansas rate	0.1 per 100,000
U.S. rate (2000)	N/A

In 2001, two cases were reported, a decrease from 5 cases in 2000. The three-year median for 1998-2000 was 5 cases. Seventy-seven cases of amebiasis were reported in Kansas for the ten year period 1991-2000. The largest number of cases was reported in 1993, 22 (33%); these were sporadic cases, no outbreaks were reported.

Amebiasis incidence rate by year of report
Kansas, 1983-2001



Amebiasis cases by county
Kansas, 2001



ANTHRAX

Anthrax is an acute bacterial infection that usually affects the skin (cutaneous anthrax), but which may very rarely involve the oropharynx, respiratory tract (inhalational anthrax) or the intestinal tract (gastrointestinal anthrax). The infection is caused by *Bacillus anthracis*, an encapsulated, aerobic, gram-positive, spore-forming rod (bacillus) bacterium. The spore form of anthrax can survive in the environment for many decades. Partly because of its persistence in soil, anthrax is an important veterinary disease, especially of domestic herbivores. Anthrax spores lend themselves well to aerosolization and resist environmental degradation. Moreover, these spores, at 2-6 microns in diameter, are the ideal size for impinging on human lower respiratory mucosa, optimizing the chance for infection. Most endemic anthrax cases are cutaneous and are contracted by close contact of abraded skin with products derived from infected herbivores, principally cattle, sheep, and goats.

Cutaneous anthrax accounts for 95% of anthrax cases. It is characterized by a painless lesion, often at the site of cut or abrasion. Initial symptoms of inhalational anthrax are mild and nonspecific and may include fever, malaise, profound sweats, chest discomforts and nonproductive cough. Subsequent symptoms include severe toxic states and severe acute respiratory distress. Symptoms of gastrointestinal anthrax include nausea, vomiting, anorexia and fever progressing to severe abdominal pain, hematemesis, and diarrhea that is almost bloody.

Anthrax is one of the great infectious diseases of antiquity, and it presents a biological warfare threat. The natural incidence of the disease in the USA is low. If untreated, anthrax in all forms can lead to septicemia and death although fatalities are much more common with inhalation or ingested anthrax than with the cutaneous form. Human-to-human transmission is extremely rare and only reported with cutaneous anthrax. Among humans, there has been no increase in naturally acquired infection in the United States.

*Coordinate all aspects of testing, packaging, and transporting with public health laboratory.

Clinical Criteria

An illness with acute onset characterized by several distinct clinical forms, including the following:

- Cutaneous: a skin lesion evolving during a period of 2-6 days from a papule, through a vesicular stages, to a depressed black eschar.
- Inhalation: a brief prodrome resembling a viral respiratory illness, followed by development of hypoxia and dyspnea, with radiographic evidence of mediastinal widening.
- Intestinal: severe abdominal distress followed by fever and signs of septicemia.
- Oropharyngeal: mucosa lesion in the oral cavity or oropharynx, cervical adenopathy and edema, and fever.

Laboratory Criteria for Surveillance Purposes

- Isolation of *Bacillus anthracis* from a clinical specimen, or
- Anthrax electrophoretic immunotransblot (EITB) reaction to the protective antigen and/or lethal factor bands in one or more serum samples obtained after onset of symptoms, or
- Demonstration of *B. anthracis* in a clinical specimen by immunofluorescence.

Surveillance Case Definitions

- *Confirmed*: a clinically compatible case that is laboratory confirmed.

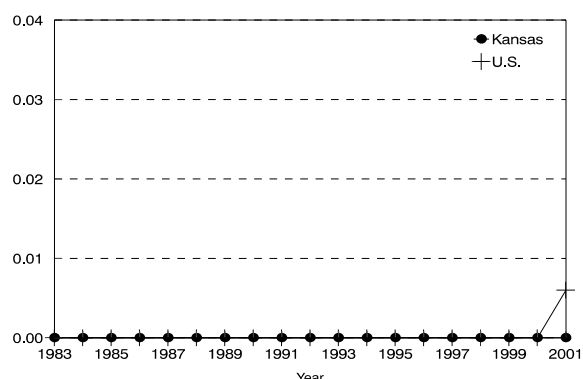
NOTE: This organism is a potential bioterrorist agent. Cases should be immediately reported to 1-877-427-7317.

Epidemiology and Trends

2001 Case Total 0
U.S. rate (2001) <0.1 per 100,000

In 2001, there were no anthrax cases reported in Kansas. A total of 18 confirmed cases of anthrax were reported in U.S. in 2001; 7 cutaneous and 11 inhalational, and 5 deaths. The inhalational cases were associated with bioterrorism.

Anthrax incidence rate by year of report
Kansas, 1983-2001



BRUCELLOSIS

Brucellosis is a systemic bacterial disease caused by *Brucella spp.*, a small Gram negative coccobacilli. Humans are susceptible to *B. melitensis*, *B. suis*, *B. abortus* and *B. canis* but are considered accidental hosts. Several animals are reservoirs, including cattle, sheep, goats, pigs, bison, elk, deer, caribou, and dogs. Brucellosis is a disease that has been nearly eliminated in the U.S. because of vigorous animal health control measures and milk pasteurization and Kansas is considered a brucellosis free state by the United States Department of Agriculture (USDA). It is most likely to be found in people associated with livestock. In humans, it is characterized by acute or insidious onset of intermittent or irregular fever, chills, profuse night sweats, weakness, profound fatigue, and weight loss. Other common symptoms include insomnia, impotence, constipation, anorexia, headache, arthralgia and general malaise. Lymphadenopathy, splenomegaly, and hepatomegaly are common, but jaundice is rare. Symptoms can last for weeks or months to years or more if not adequately treated and diagnosis can be difficult. In animals, the organism has an affinity for the reproductive organs with abortions or epididymitis and orchitis as presenting signs. Fatalities are rare. The incubation period is highly variable and difficult to ascertain; it is usually 5-60 days, but occasionally may be several months. Bacteria is found in unpasteurized milk from diseased cows and also from discharges from animals that abort their fetus from the disease. Transmission is from contact, ingestion and aerosolization of the organism. It can also be acquired from self-inoculation of some vaccine strains. There is no person to person transmission.

Laboratory Criteria for Surveillance Purposes

- Isolation of *Brucella* sp. from a clinical specimen, *or*
- Fourfold or greater rise in *Brucella* agglutination titer between acute- and convalescent-phase serum specimens obtained ≥ 2 weeks apart and studied at the same laboratory, *or*
- Demonstration by immunofluorescence of *Brucella* sp. in a clinical specimen.

Surveillance Case Definitions

- *Confirmed*: a clinically compatible case that is laboratory confirmed.
- *Probable*: a clinically compatible case that is epidemiologically linked to a confirmed case or that has supportive serology (i.e., *Brucella* agglutination titer of ≥ 160 in one or more serum specimens obtained after onset of symptoms)

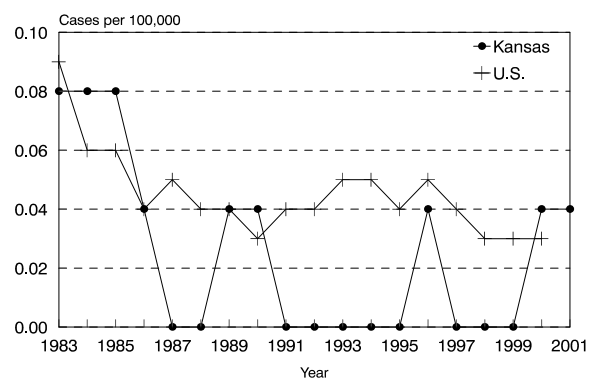
NOTE: This organism is a potential bioterrorist agent. Cases should be immediately reported to 1-877-427-7317.

Epidemiology and Trends

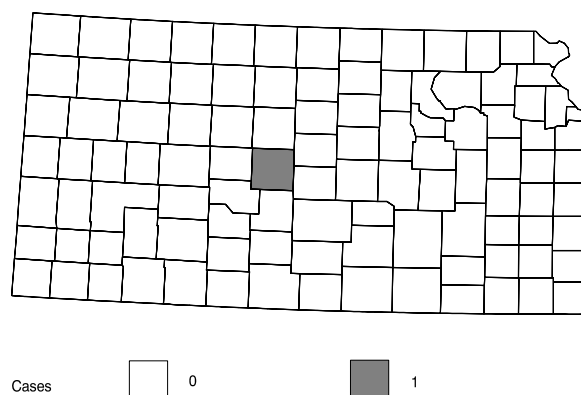
2001 Case Total 1
 Kansas rate <0.1 per 100,000
 U.S. rate (2000) <0.1 per 100,000

In 2001, one brucellosis case was reported and no source was identified. Two cases of Brucellosis were reported between 1991-2000 in Kansas.

Brucellosis rate by year of report
Kansas, 1983-2001



Brucellosis cases by county
Kansas, 2001



CAMPYLOBACTERIOSIS

Campylobacteriosis is an acute enteric disease caused by the bacteria *Campylobacter jejuni* and, less commonly, *C. coli*. It is characterized by diarrhea, abdominal pain, malaise, fever, nausea and vomiting. The illness is frequently over within 2-5 days. Prolonged illness and relapses may occur in adults. Rarely, some long-term consequences can result from a *Campylobacter* infection. Some people may have arthritis following campylobacteriosis; others may develop a rare disease, Guillain-Barré syndrome, that affects the nerves of the body beginning several weeks after the diarrheal illness. This syndrome occurs when a person's immune system is "triggered" to attack the body's own nerves, and can lead to paralysis that lasts several weeks and usually requires intensive care. It is estimated that approximately only one in every 1000 reported Campylobacteriosis cases leads to Guillain-Barré syndrome and as many as 40% of Guillain-Barré syndrome cases in this country may be triggered by campylobacteriosis. The mode of transmission is by ingestion of the organisms in undercooked poultry or pork, contaminated food and water, or raw milk; from contact with infected pets (especially puppies and kittens), farm animals or infected infants. Contamination of milk most frequently occurs from feces of carrier cattle; people and food can be contaminated from poultry, especially from common cutting boards. Person-to-person transmission appears to be uncommon with *C. jejuni*.

Laboratory Criteria for Surveillance Purposes

- Isolation of *Campylobacter* from any clinical specimen.

Surveillance Case Definitions

- *Confirmed*: a case that is laboratory confirmed.
- *Probable*: a clinically compatible case that is epidemiologically linked to a confirmed case.

Epidemiology and Trends

2001 Case Total	286
Kansas rate	10.6 per 100,000
U.S. rate (2000)	N/A

Rate by gender

Female	8.6 per 100,000
Male	12.3 per 100,000

Rate by race

White	9.0 per 100,000
African-American	2.0 per 100,000
Asian/Pacific Islander	10.4 per 100,000

Rate by ethnicity

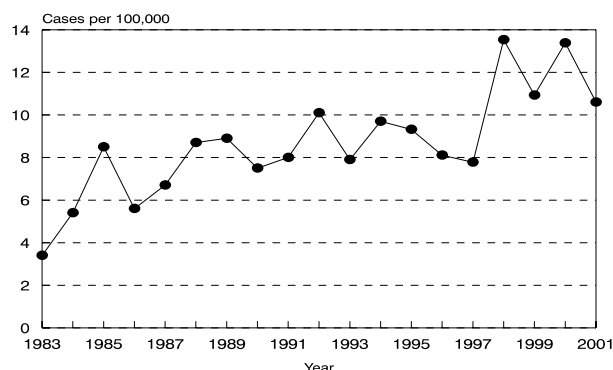
Hispanic	12.2 per 100,000
Non-Hispanic	6.8 per 100,000

Rate by geographic area

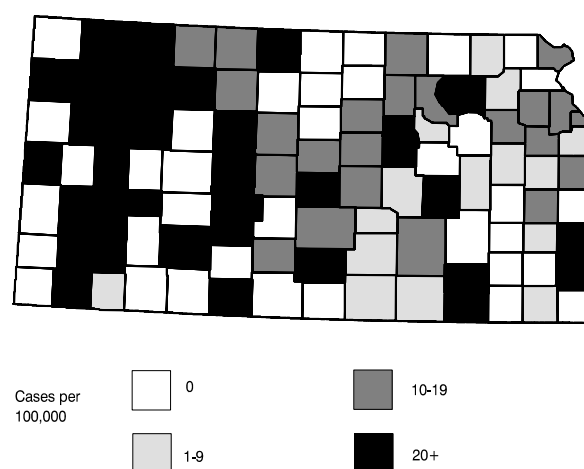
Urban	8.5 per 100,000
Rural	12.8 per 100,000

Campylobacteriosis is one of the most commonly reported gastrointestinal illnesses in Kansas. In 2001, 286 cases were reported, a 19% decrease over the 355 cases reported in 2000. The three-year median for 1998-2000 was 351 cases. No outbreaks were reported in 2001. The cases ranged in age from less than 1 year to 89 years of age. The median age was 33 years and the highest incidence rate occurred in those under 5 years of age (27.6/100,000); 57% of the cases were in males. Seventy-two percent of cases were Whites, 2% Asian/Pacific Islanders, 1% African-Americans, and in 25% of cases race was not reported. The ratio of cases reported from urban areas to rural areas was about 1:1.5. A serotype was known for 67% (191) of the cases reported. *C. jejuni* (96%, 184 cases) was the predominant serotypes, followed by *C. coli* (4%, 7 cases).

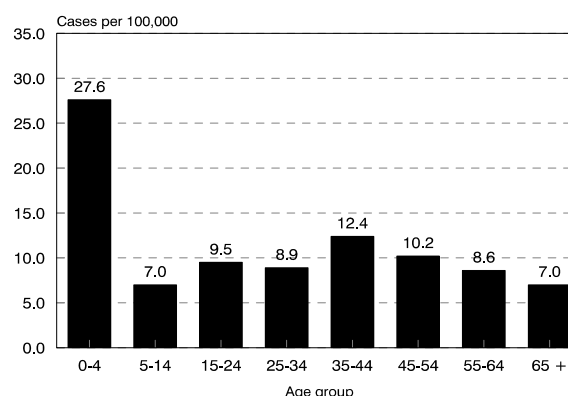
Campylobacteriosis incidence rate by year
Kansas, 1983-2001



Campylobacteriosis rate by county
Kansas, 2001



Campylobacteriosis rate by age group
Kansas, 2001



CHLAMYDIA

Chlamydia trachomatis is a sexually transmitted genital infection which is manifested in males primarily as a urethritis, and in females as a mucopurulent cervicitis. Asymptomatic infections are common. Clinical manifestations of urethritis are often difficult to distinguish from gonorrhea and include mucopurulent discharges of scanty or moderate quantity, urethral itching, and burning on urination. The incubation period is poorly defined, probably 7-14 days or longer. Complications of chlamydia in males include epididymitis that can lead to sterility. Individuals who engage in receptive anorectal intercourse may develop chlamydia proctitis. Common complications in women include salpingitis and chronic infection of the endometrium and fallopian tubes. These complications can lead to infertility and ectopic pregnancies. Endocervical chlamydia infection has been associated with increased risk of HIV infection. Perinatal infections may result in inclusion conjunctivitis and pneumonia in newborns.

Laboratory Criteria for Surveillance Purposes

- Isolation of *C. trachomatis* by culture ***or***
- Demonstration of *C. trachomatis* in a clinical specimen by detection of antigen or nucleic acid.

Surveillance Case Definitions

- *Confirmed*: a case that is laboratory confirmed.
- *Probable*: a written morbidity report of chlamydia submitted by a physician.

Comment

- Chlamydia became reportable in 1985 in Kansas. State-wide screening began in 1990, targeting females #29 years of age. In July of 1995, the screening criteria were amended. Current guidelines, recommended by the Region VII Infertility Prevention Project (which includes Iowa, Kansas, Missouri, and Nebraska), are to screen the following individuals: (1) all female STD clinic patients, (2) in family planning clinics, all females #24 years old, and females between 25 and 29 years old with one of the following characteristics: contact to an STD, symptoms suggesting an STD, and/or a new sexual partner since last exam. In addition, prenatal clinics screen all clients upon initial exam.
- More detailed information on STDs in Kansas is available at: www.kdhe.state.ks.us/hiv-std.

Epidemiology and Trends

2001 Case Total	6,172
Kansas rate	229.6 per 100,000
U.S. rate (2000)	257.8 per 100,000

Rate by gender

Female	373.8 per 100,000
Male	81.9 per 100,000

Rate by race/ethnicity

White	122.6 per 100,000
African-American	1,224.4 per 100,000
Asian/Pacific Islander	145.3 per 100,000
Native American	252.6 per 100,000
Hispanic	421.8 per 100,000

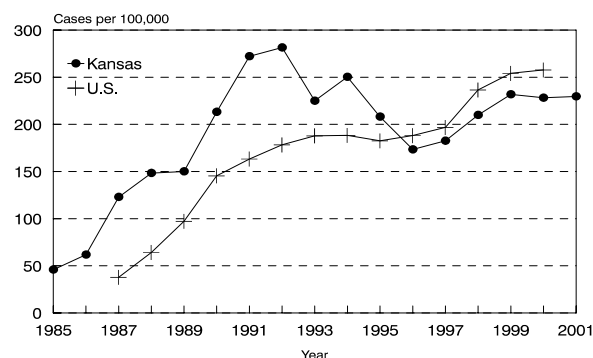
Rate by geographic area

Urban	297.9 per 100,000
Rural	162.4 per 100,000

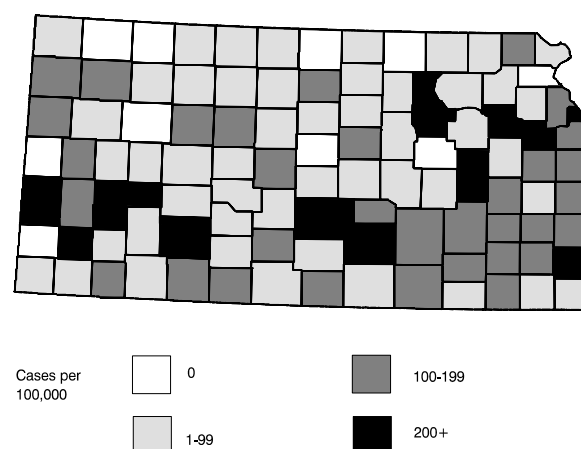
Chlamydia trachomatis continued to be the most frequently reported sexually transmitted disease in Kansas, with 95 of 105 counties reporting at least one case in 2001. A total of 6,172 chlamydia infections were reported during 2001, higher than the three-year median (for 1998-2000) of 6,093. There has been an upward trend since 1995, but the Kansas rate has remained below the national rate during the time.

The cases ranged in age from 0 to 79 years with a median age of 20. Females accounted for 82% of the reported cases and 78% of all reported cases in 2001 occurred in the 15-24 year old age group. This figure may reflect the focused screening efforts among women. Whites account for more cases than any other race but the case rates for other races is higher than Whites. Members of the African-American population were disproportionately

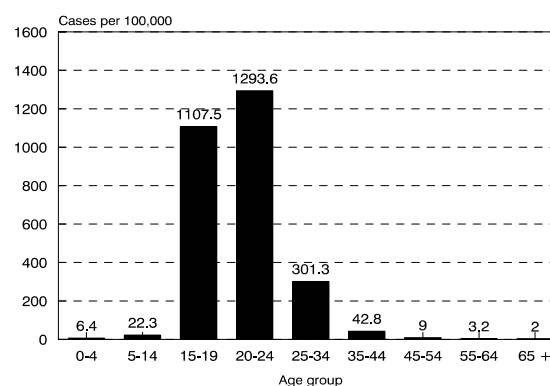
Chlamydia incidence rate by year
Kansas, 1985-2001



Chlamydia rate by county
Kansas, 2001



Chlamydia rate by age group
Kansas, 2001



affected by chlamydia during 2001. This may reflect reporting bias, as described in the introduction. The largest number of cases and highest rates occurred in the four largest metropolitan areas which accounted for 64% of the cases but 49% of the state's total population.

In 2001, a total of 40,072 tests were performed by Kansas Health and Environmental Laboratory, Sedgwick and Wyandotte County laboratories with an overall chlamydia positivity rate of 4.8% (1,917/40,072).

CRYPTOSPORIDIOSIS

Cryptosporidiosis is caused by the parasite *Cryptosporidium parvum*. Illness is characterized by diarrhea, abdominal cramps, loss of appetite, low-grade fever, nausea, and vomiting. Symptoms often wax and wane but disappear in less than 30 days in most immunologically healthy people and infected persons may be asymptomatic. The disease can be prolonged and life-threatening in severely immunocompromised persons. Incubation period is not precisely known, but 1-12 days is the likely range. The source of the infection is usually stools from infected individuals or animals. It is spread by fecal-oral contact. Hands can become contaminated with parasites when a person changes the diaper of an infant with cryptosporidiosis or from improper hand washing after toileting. Pets, farm animals, and unpasteurized milk can also transmit the parasite. Outbreaks have been associated with drinking contaminated water, bathing in contaminated swimming pools and lakes, and drinking unpasteurized apple cider. Normal water chlorination processes are not effective against the oocyst form of the parasite. Heating water to 45°C (113 °F) for 5-20 minutes, 60 °C (140 °F) for 2 minutes, or chemical disinfection with 10% formalin or 5% ammonia solution is effective.

Laboratory Criteria for Surveillance Purposes

- Demonstration of *Cryptosporidium* oocysts in stool, ***or***
- Demonstration of *Cryptosporidium* in intestinal fluid or small-bowel biopsy specimens, ***or***
- Demonstration of *Cryptosporidium* antigen in stool by a specific immunodiagnostic test (e.g., enzyme-linked immunoabsorbent assay).

Surveillance Case Definitions

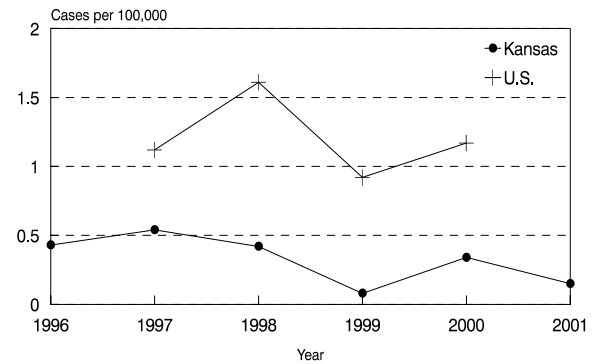
- *Confirmed*: a case that is laboratory confirmed.
- *Probable*: a clinically compatible case that is epidemiologically linked to a confirmed case.

Epidemiology and Trends

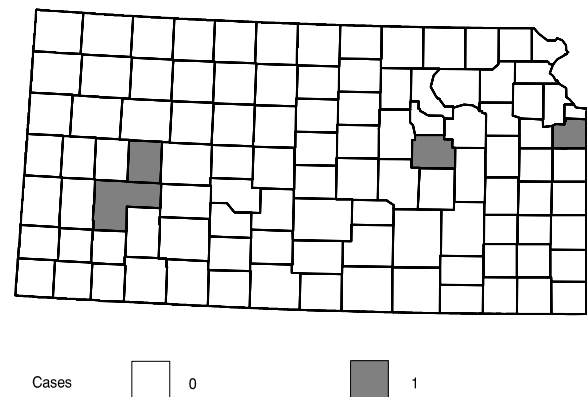
<i>2001 Case Total</i>	4
Kansas rate	0.3 per 100,000
U.S. rate (2000)	1.2 per 100,000

In 2001, there were 4 cases of cryptosporidiosis reported in Kansas, down from 9 cases in 2000. Cryptosporidiosis has been a reportable disease in Kansas since 1996. The three-year median for 1998-2000 was 9 cases. The largest number of cases (31) was reported in 1995; twenty-four cases were related to an outbreak associated with a swimming pool.

Cryptosporidiosis incidence rate by year
Kansas, 1996-2001



Cryptosporidiosis cases by county
Kansas, 2001



EHRlichiosis

Human Ehrlichiosis is a tickborne disease. The first cases were described in the United States in 1987. It is an acute, febrile, bacterial illness caused by several bacterial species in the genus *Ehrlichia*. Three species of *Ehrlichia* in the United States and one in Japan are currently known to cause disease in humans. The form most commonly seen in Kansas, and other upper mid-western states, is known as human granulocytic Ehrlichiosis (HGE) transmitted by *Ixodes* spp. ticks. The form most common in the southeastern states is *Ehrlichia chaffeensis* transmitted by the Lone Star tick (*Amblyomma americanum*). The spectrum of disease ranges from subclinical infection or mild illness to a severe life threatening or fatal disease. Both forms are commonly characterized by an acute onset of headache, fever, myalgia, rigors and/or malaise with leukopenia, thrombocytopenia and elevated liver enzymes.

Laboratory Criteria for Surveillance Purposes

- Four-fold or greater change in antibody titer to *Ehrlichia* spp. antigen by immunofluorescence antibody (IFA) test in acute- and convalescent-phase specimens ideally taken 4 weeks apart. HME diagnosis requires *E. chaffeensis* and HGE currently requires *E. equi* or HGE-agent antigen, **or**
- Positive polymerase chain reaction assay. Distinct primers are used for the diagnosis of HGE and HME, **or**
- Intracytoplasmic morulae identified in blood, bone marrow, or CSF leukocytes, **and** an IFA antibody titer ≥64.

Surveillance Case Definitions

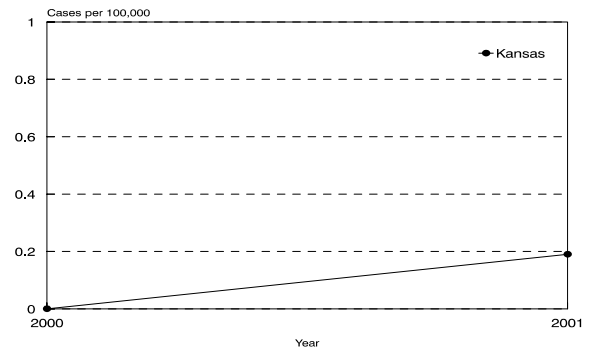
- *Confirmed*: a clinically compatible case that is laboratory confirmed.
- *Probable*: a clinically compatible case with either a single IFA serologic titer ≥64 or intracytoplasmic morulae identified in blood, bone marrow, or CSF leukocytes.

Epidemiology and Trends

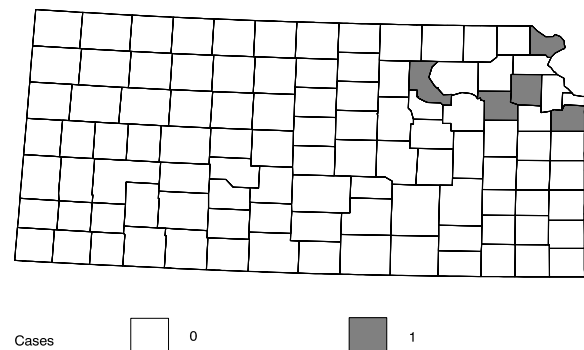
<i>2001 Case Total</i>	5
Kansas rate	0.2 per 100,000
U.S. rate (2000)	N/A

In Kansas, ehrlichiosis became reportable in the year 2000. The first cases of the infection (5) were reported in 2001, mainly from eastern portion of the state: one human granulocytic and four human monocytic. Only one case reported a tick bite. From another case, a tick was collected and tested positive for *E. chaffeensis*. One reported of traveling to Florida and Ozark area of Missouri.

Ehrlichiosis incidence rate by year
Kansas, 2000-2001



Ehrlichiosis cases by county
Kansas, 2001



ENCEPHALITIS, INFECTIOUS

Infectious encephalitis is an acute inflammatory process of short duration involving parts of the brain, spinal cord and meninges. Infectious agents associated with encephalitis may be viral, fungal, or bacterial. Arboviral encephalitis is a form of infectious encephalitis that is mosquito-borne. Signs and symptoms of these diseases are similar but vary in severity and rate of progress. Most infections are asymptomatic; mild cases often occur as febrile headache. Severe infections are usually marked by acute onset, headache, high fever, stupor, disorientation, coma, tremors, occasionally convulsions (especially in infants), and paralysis. The incubation period and mode of transmission varies depending on the infectious agent. West Nile Virus (WNV) is an infectious encephalitis. Others include Saint Louis encephalitis (SLE) and Western Equine encephalitis (WEE).

Laboratory Criteria for Surveillance Purposes

- Fourfold or greater change in serum antibody titer, **or**
- Isolation of infectious agent from or demonstration of viral antigen or genomic sequences in tissue, blood, cerebrospinal fluid (CSF), or other body fluid, **or**
- Specific immunoglobulin M (IgM) antibody by enzyme immunoassay (EIA) antibody captured in CSF or serum. Serum IgM antibodies alone should be confirmed by demonstration of immunoglobulin G antibodies by another serologic assay (e.g., neutralization or hemagglutination inhibition).

Surveillance Case Definitions

- *Confirmed*: a clinically compatible case that is laboratory confirmed.
- *Probable*: a clinically compatible case occurring during a period when arboviral transmission is likely, and with the following supportive serology: a stable (#twofold change) elevated antibody titer to an arbovirus (e.g., \$320 by hemagglutination inhibition, \$128 by complement fixation, \$256 by immunofluorescence, and \$160 by neutralization, or \$400 by enzyme immunoassay IgM).

NOTE: Some of these organisms are potential bioterrorist agents. Since this is a group of illnesses, with mosquitoes being the vectors, some are considered “native” to an area, while others are not. If several people are infected, bioterrorism would be suspected, as there is no human to human spread and a competent mosquito host is normally required for disease transmission. Cases should be immediately reported to 1-877-427-7317.

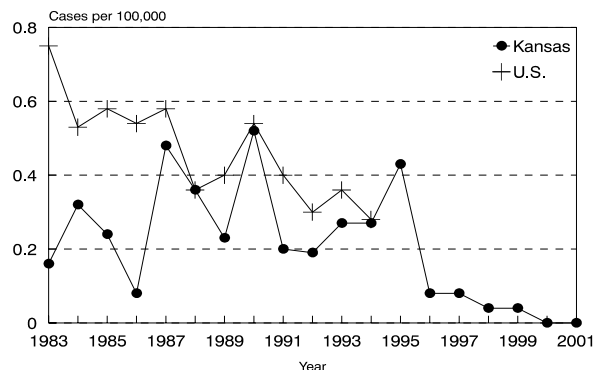
Epidemiology and Trends

2001 Case Total 0
U.S. rate (2000) N/A

In 2001, no viral encephalitis cases were reported. A total of 41 cases of infectious encephalitis were reported for the ten year period, 1991-2000. There have been 1-13 cases reported annually in Kansas.

There were total of 125 Saint Louis encephalitis and 36 Western equine encephalitis cases reported in Kansas between 1964-1999.

Infectious Encephalitis incidence rate by year
Kansas, 1983-2001



Arbovirus Surveillance in Kansas

Since the summer of 2001, the Kansas State University Entomology Department and Veterinary College worked with KDHE through Centers for Disease Control and Prevention (CDC) grant for arbovirus surveillance especially West Nile virus. This included sampling and testing mosquitoes for St. Louis Encephalitis virus (SLE), Western Equine Encephalitis virus (WEE), and West Nile virus (WNV). The species of mosquito also were determined and compared to mosquitoes found in Kansas during a similar survey in 1994. Dead bird surveillance began to enhance the passive surveillance of human arbovirus encephalitis, including West Nile virus.

In 2001, no known cases of West Nile Virus among birds, mosquitoes, mammals, or humans was identified in Kansas. For more information or to report dead birds, contact the Kansas State University West Nile Virus hotline at (866) 452-7810.

Enteropathogenic *Escherichia coli* (including hemolytic uremic syndrome)

Enteropathogenic *Escherichia coli* infection is a diarrheal illness caused by the bacterium, *Escherichia coli* O157:H7 and other enterohemorrhagic, enteropathogenic and enteroinvasive *E. coli*. Although most strains of *E. coli* are harmless and live in the intestines of healthy humans and animals, these strains produce powerful toxins and can cause severe illness. The condition is characterized by bloody or non-bloody diarrhea, accompanied by abdominal cramps. The infection can lead to the hemolytic uremic syndrome (HUS), a complication that may produce abnormal kidney function, and thrombotic thrombocytopenic purpura (TTP), a blood and kidney illness that can also affect the nervous system. Young children and the elderly are at increased risk for severe complications, occasionally resulting in death. Asymptomatic infections may also occur. The incubation period is from 3 to 4 days, but can extend to 10 days. Enteropathogenic *E. coli* infections have been linked to eating under-cooked ground beef and drinking unpasteurized contaminated juice, as well as through person-to-person transmission. Outbreaks have also been traced to contaminated produce and contaminated water. The organism can also spread easily from person to person, especially in day care centers and nursing homes.

Laboratory Criteria for Surveillance Purposes

- Isolation of *Escherichia coli* spp. from a clinical specimen. Special culture media must be used for confirmation. Some laboratories do not routinely test for pathogenic *E. coli* as part of the enteric bacteriology performed, unless specifically requested.

Note: Positive shiga toxin EIA (enzyme immunoassay) test directly on stool specimens instead of culture indicates only that shiga toxin is present in the specimen. It does not give specific information such as which *E. coli* strain was responsible or whether it was a rare *Shigella dysenteriae*. Any shiga toxin positive stool should be sent to Kansas Health and Environment Laboratory for culture so that the organism can be identified and have it available for PFGE (Pulsed-field gel electrophoresis) testing.

Surveillance Case Definitions

- *Confirmed:* a case that is laboratory confirmed.

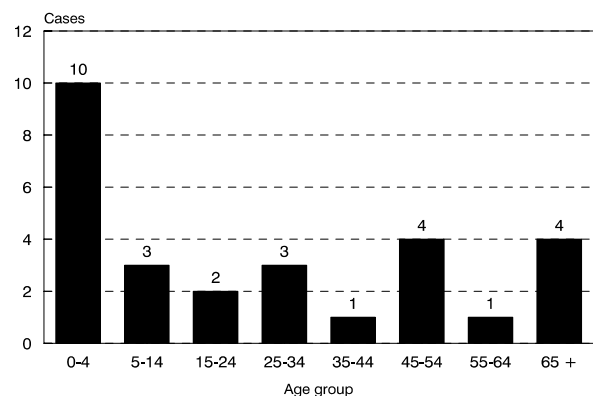
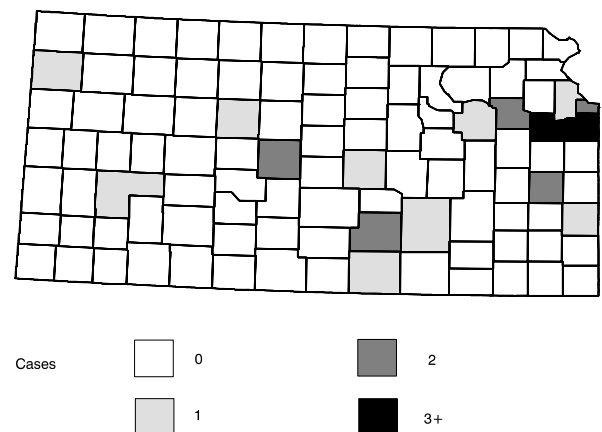
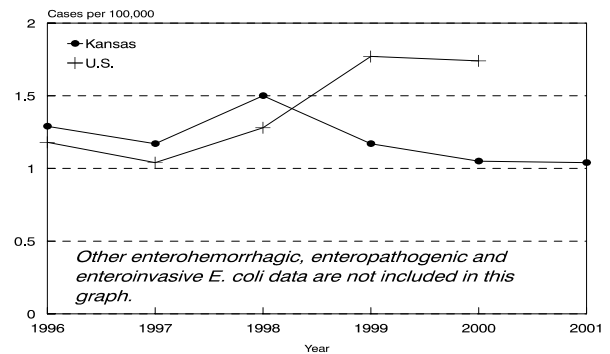
Comment

- Confirmation is based on laboratory findings; clinical illness is not required.
- K.A.R. 28-1-18 requires that isolates be sent to Kansas Health and Environmental Laboratory.

Cases by gender

Cases by geographic area

There were 28 cases of Enteropathogenic *E. coli* reported in Kansas in 2001. Twenty-five cases of *E. coli* O157:H7, and 3 cases of Enterotoxigenic *E. coli* were reported. No cases of hemolytic uremic syndrome were reported. All reported cases were apparently sporadic cases; no outbreaks were detected in 2001. The cases ranged in age from less than 1 year to 91 years of age. The median age was 20 years. The highest incidence occurred in those less than 5 years of age.



GIARDIASIS

Giardiasis is an illness caused by *Giardia lamblia*, a one-celled, microscopic parasite that lives in the intestines of people and animals. The most common symptoms are diarrhea, abdominal cramps, and nausea, but asymptomatic infections may also occur. Symptoms may lead to weight loss and dehydration, appear 1-2 weeks after infection, and may last 4-6 weeks. It is most commonly transmitted through oral-fecal contact, by water contaminated with feces and occasionally from contact with infected pets (especially puppies and kittens).

Laboratory Criteria for Surveillance Purposes

- C Demonstration of *Giardia lamblia* cysts in stool, ***or***
- C Demonstration of *Giardia lamblia* trophozoites in stool, duodenal fluid, or small bowel biopsy

Surveillance Case Definitions

- C *Confirmed*: a case that is laboratory confirmed.
- C *Probable*: a clinically compatible case that is epidemiologically linked to a confirmed case.

Note: Giardiasis is not a nationally notifiable disease.

Epidemiology and Trends

<i>2001 Case Total</i>	178
Kansas rate	6.6 per 100,000
U.S. rate (2000)	N/A

Rate by gender

Female	6.5 per 100,000
Male	6.6 per 100,000

Rate by race

White	5.2 per 100,000
African-American	3.2 per 100,000
Asian/Pacific Islander	16.6 per 100,000

Rate by ethnicity

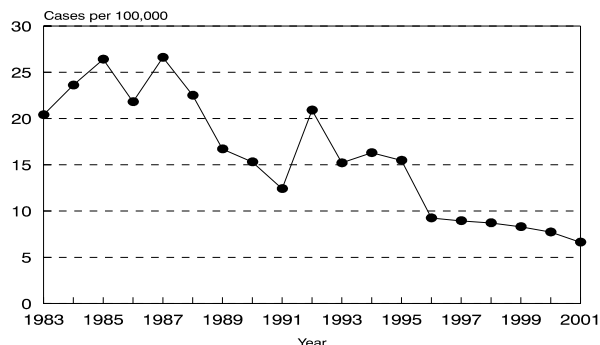
Hispanic	2.7 per 100,000
Non-Hispanic	4.7 per 100,000

Rate by geographic area

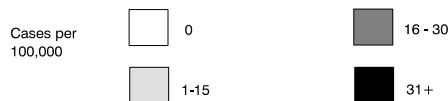
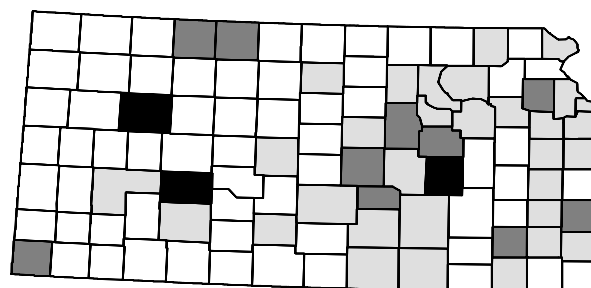
Urban	6.5 per 100,000
Rural	6.7 per 100,000

In Kansas, there were 178 giardia cases reported in 2001, a decrease (13%) compared to 205 cases in 2000. Reports of the disease in general decreased over the past 10 years. The three-year median for 1998-2000 was 220 cases. The cases ranged in age from less than 1 year to 84 years of age (median 31). This disease continues to affect primarily those less than 5 years of age with an incidence rate of 22 cases per 100,000 population. The majority of cases were Whites (67%), with an incidence rate of 5.2/100,000. However, among specific counties, Johnson county had the largest number of reported cases with a county-specific rate of 8.4/100,000, followed by Sedgwick county with a county-specific rate of 4.6/100,000. There were no giardia outbreaks reported or identified in Kansas in 2001, all the cases were apparently sporadic.

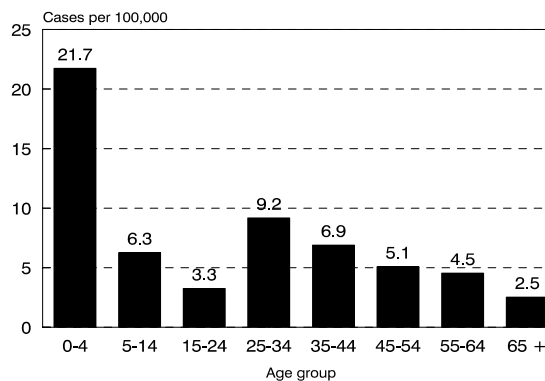
Giardiasis incidence rate by year
Kansas, 1983-2001



Giardiasis rate by county
Kansas, 2001



Giardiasis rate by age group
Kansas, 2001



GONORRHEA

Gonorrhea is a bacterial infection caused by *Neisseria gonorrhea*. Symptoms of gonorrhea usually appear within two to 10 days after sexual contact with an infected partner, although a small percentage of patients may be infected for several months without showing symptoms. In males it is usually characterized by a purulent urethral discharge and dysuria. In females, there is an initial urethritis or cervicitis often so mild it may pass unnoticed. Dependent upon sexual practices, pharyngeal and anorectal infections can occur. In males, the urethral infection is usually self-limiting; however, it may progress to epididymitis, and in rare cases, it can disseminate into an arthritis-dermatitis syndrome, endocarditis, and meningitis. Twenty percent of women infected with gonorrhea may develop uterine infection which may progress to endometritis, salpingitis or pelvic inflammatory disease (PID), and risk of infertility. Perinatal infections may result in inclusion conjunctivitis and pneumonia in newborns. Gonorrhea infection has been associated with increased risk of Human Immunodeficiency Virus infection (HIV).

Laboratory Criteria for Surveillance Purposes

- Isolation of typical gram-negative, oxidate-positive diplococci (presumptive *Neisseria gonorrhea*) from a clinical specimen, ***or***
- Demonstration of *N. gonorrhea* in a clinical specimen by detection of antigen or nucleic acid, ***or***
- Observation of gram-negative intracellular diplococci in a urethral smear obtained from a male.

Surveillance Case Definitions

- *Confirmed*: a case that is laboratory confirmed.
- *Probable*: (a) demonstration of gram-negative intracellular diplococci in an endocervical smear obtained from a female ***or***
(b) a written morbidity report of gonorrhea submitted by a physician.

Comments

- The gonorrhea screening program began in Kansas in 1973, providing testing in STD, prenatal, family planning, student health and prison facilities. The STD program contracts with Sedgwick and Wyandotte County Health Department Laboratories to perform tests for selected physicians in these communities. KDHE laboratories processes specimens from public or private clinics in other parts of the state.
- More detailed information on STDs in Kansas is available at: www.kdhe.state.ks.us/hiv-std.

Epidemiology and Trends

<i>Case Total</i>	2,761
Kansas rate	102.7 per 100,000
U.S. rate (2000)	131.7 per 100,000

Rate by gender

Female	111.5 per 100,000
Male	93.7 per 100,000

Rate by race/ethnicity

White	30.0 per 100,000
African-American	1,088.9 per 100,000
Asian/Pacific Islander	27.8 per 100,000
Native American	52.1 per 100,000
Hispanic	108.4 per 100,000

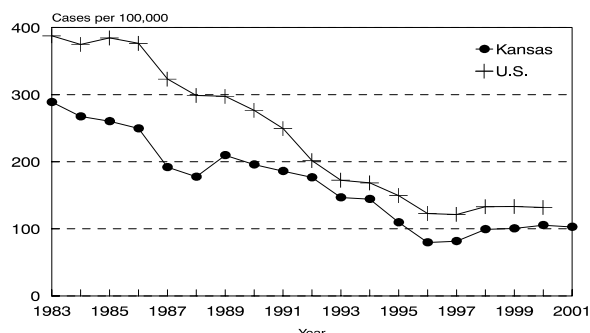
Rate by geographic area

Urban	164.6 per 100,000
Rural	41.9 per 100,000

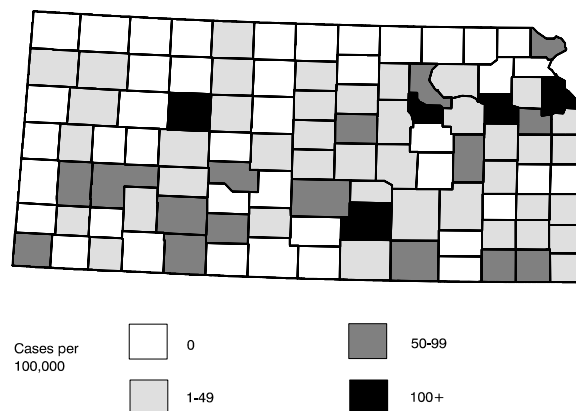
Gonorrhea is the second most commonly reported sexually transmitted disease in Kansas. In 2001, 2,761 cases of gonorrhea were reported in Kansas. This number is virtually unchanged from the 2,795 cases reported in 2000. The three-year median for 1998-2000 was 2,665 cases. The cases ranged from 0 to 71 years of age with a median age of 22 years. Females accounted for 55% of the reported cases. As with chlamydia, gonorrhea infections disproportionately affect females in their childbearing years. Sixty-four percent of all reported cases in 2001 occurred in the 15-24 age group. This may represent the result of targeted screening efforts.

African-Americans accounted for 61% of all reported gonorrhea infections, followed by Whites (25%), Hispanics (7%), and Native Americans, Asian/Pacific Islanders each with

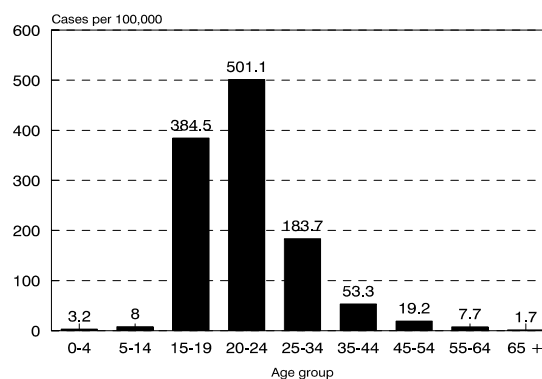
Gonorrhea incidence rate by year
Kansas, 1983-2001



Gonorrhea rate by county
Kansas, 2001



Gonorrhea rate by age group
Kansas, 2001



less than 1% of the total cases. This may be due to differences in screening sites and in reporting bias, as described in the introduction. However, even when looking at results within each screening site, the positivity rate of gonorrhea was higher among African-Americans and Hispanics than among Whites. Urban areas continued to report the majority of infections, with Wyandotte and Sedgwick Counties accounting for 61% of the total cases reported.

In 2001, a total of 40,072 tests were performed by Kansas Health and Environmental Laboratory, Sedgwick and Wyandotte County laboratories with an overall positivity rate of 1.7% (681/40,072). The remaining cases reported in 2001 originated from providers and other laboratories across Kansas.

HAEMOPHILUS INFLUENZAE, invasive disease*

Haemophilus influenzae is a Gram-negative cocobacillus that causes invasive diseases such as meningitis, septic arthritis, epiglottitis, cellulitis, bacteremia, and pneumonia. Invasive disease can be caused by serotypes (a) through (f). Most cases of invasive diseases in children before the introduction of *H. influenzae* type b (Hib) conjugate vaccination were caused by type b. The source of the organism is the upper respiratory tract of humans. Symptoms may include fever, lethargy, vomiting, and a stiff neck. Other symptoms depend on the part of the body affected. The incubation period is short, from 2 to 4 days. Antibiotic prophylaxis may be recommended when susceptible children are exposed to serotype b cases. The mode of transmission is presumably person to person, by direct contact, or through inhalation of droplets of respiratory tract secretions.

The first conjugate vaccine against Hib became available in 1987. There are currently several Hib conjugate vaccines licensed by the U.S. Food and Drug Administration. Recommendations are that all children be immunized with an approved Hib vaccine beginning at two months of age or as soon as possible thereafter. High levels of immunization among children have caused a dramatic decrease in the incidence of this disease.

Laboratory Criteria for Surveillance Purposes

- Isolation of *H. influenzae* from a normally sterile site (e.g., blood, cerebrospinal fluid [CSF], joint, pleural, or pericardial fluid).

Surveillance Case Definitions

- *Confirmed*: a clinically compatible case that is laboratory confirmed.
- *Probable*: a clinically compatible case with detection of *H. influenzae* type b antigen in CSF.

Comment

- **Report suspect cases by telephone immediately.**
- All suspected, probable, and confirmed cases of *H. influenzae* type b are reportable and reviewed by the KDHE Immunization Program staff for appropriate control measures.
- Positive antigen test results from urine or serum samples are unreliable for diagnosis of *H. influenzae* disease.

*Invasive means bacteria isolated from a normally sterile site, such as blood, bone, joint, pericardial fluid, peritoneal fluid, or spinal fluid.

Epidemiology and Trends

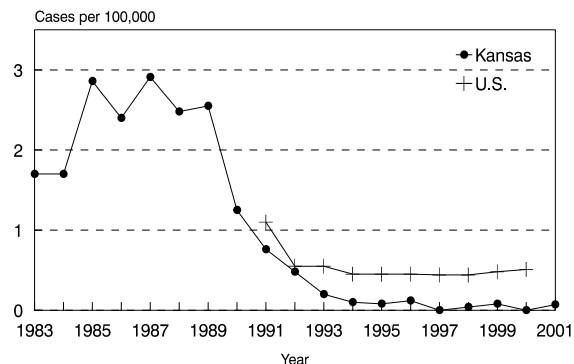
2001 Case Total	2
Kansas rate	0.1 per 100,000
U.S. rate (2000)	0.5 per 100,000

In 2001, two invasive *Haemophilus influenzae* infections were reported in Kansas. Both cases were reported as Hib infections.

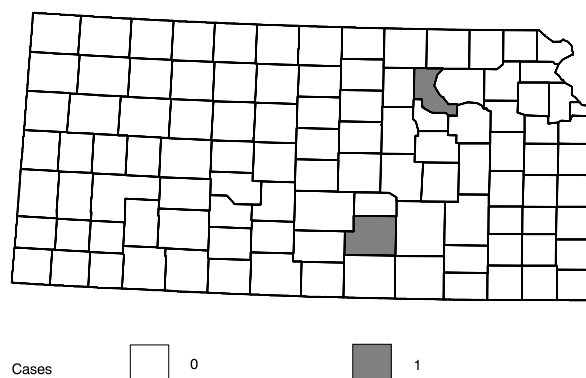
Conjugate vaccines became available in 1990 for use in infants as young as 6 weeks of age and there was an immediate and sustained decrease in the number of reported Hib cases among children in Kansas and in the U.S. Before introduction of the vaccine, an average of 31- 72 cases were seen annually in Kansas, now 0-8 cases are reported annually and most are in adults.

The national immunization goal for the year 2010 is to achieve a 90% coverage rate among two-year-old children for the complete series of vaccinations. Estimated Kansas immunization coverage rate of the National Immunization Survey for the third dose of the *Haemophilus influenzae* type b vaccine (Hib3) was 90.5% (\pm 4.5%) in 2000.

Haemophilus influenzae, invasive disease
incidence rate by year - Kansas, 1983-2001



Haemophilus influenzae, invasive disease
cases by county - Kansas, 2001



HANTAVIRUS PULMONARY SYNDROME

Hantavirus Pulmonary Syndrome (HPS) is seen in many parts of the U.S., and is commonly referred to as hantavirus. In the U.S., the agent most often implicated is Sin Nombre virus carried by deer mice. It is a febrile illness characterized by bilateral interstitial pulmonary infiltrates and respiratory compromise usually requiring supplemental oxygen and clinically resembling acute respiratory disease syndrome (ARDS). The typical prodrome consists of fever, chills, myalgia, headache, and gastrointestinal symptoms. Laboratory findings include hemoconcentration, left shift in the white blood cell count, neutrophilic leukocytosis, severe thrombocytopenia, and circulating immunoblasts. The symptoms may last a few hours to several days. People may become infected by inhaling airborne particles of urine, feces, or saliva from infected rodents. The virus may also be spread by handling infected rodents, their nests, or droppings, and then touching the person's nose, mouth, or eyes. There is no evidence of person-to-person transmission. The incubation period is one to six weeks, usually 2-3 weeks.

Clinical Criteria

An illness characterized by one or more of the following clinical features:

- A febrile illness (i.e., temperature $>101.0^{\circ}\text{F}$ [$>38.3^{\circ}\text{C}$]) characterized by bilateral diffuse interstitial edema that may radiographically resemble ARDS, with respiratory compromise requiring supplemental oxygen, developing within 72 hours of hospitalization, and occurring in a previously healthy person.
- An unexplained respiratory illness resulting in death, with an autopsy examination demonstrating noncardiogenic pulmonary edema without an identifiable cause.

Laboratory Criteria for Surveillance Purposes

- Detection of hantavirus-specific immunoglobulin M or rising titers of hantavirus-specific immunoglobulin G, or
- Detection of hantavirus-specific ribonucleic acid sequence by polymerase chain reaction in clinical specimens, or
- Detection of hantavirus antigen by immunohistochemistry.

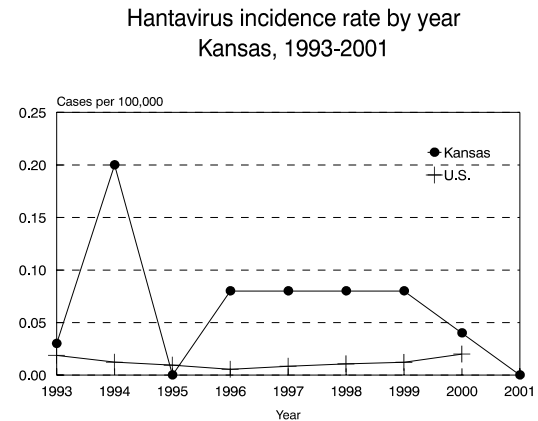
Surveillance Case Definitions

- *Confirmed*: a clinically compatible case that is laboratory confirmed.

Epidemiology and Trends

2001 Case Total 0
 U.S. rate (2000) <0.1 per 100,000

In 2001, there were no hantavirus cases reported. The three-year median for 1998-2000 was 2 cases. Since hantavirus was first recognized in the U.S. in 1993, there have been 0-4 cases reported annually in Kansas.



HEPATITIS A

Hepatitis A is caused by an RNA picornavirus that affects the liver. Onset is usually abrupt with fever, malaise, anorexia, nausea, vomiting, and abdominal discomfort, followed within a few days by jaundice. Symptoms appear, on average, one month after exposure (range 15 to 50 days). Illness lasts 1-2 weeks to several months (rare) and the length of illness depends on the clinical severity. The disease is most common among children and young adults. Severity of illness is highly variable and can be milder or asymptomatic in young children. Transmission is from person to person by the fecal-oral route. Peak levels of the agent appear in the feces a week or two before symptom onset and diminish rapidly after symptoms appear. In recent years, community-wide cases have accounted for most disease transmission, although common-source outbreaks due to food contaminated by food handlers, contaminated produce, or contaminated water continue to occur. Immunity after infection probably lasts for life.

Gamma globulin (IG) can help prevent hepatitis A if administered soon after infection, and is recommended for people who live in the same house as a person with hepatitis A, for sexual contacts of a person with hepatitis A, and for children in the same day care center with a child with hepatitis A. IG is **NOT** given to casual contacts of a person with hepatitis A because the risk of infection in these situations is extremely small. An inactivated hepatitis A vaccine is very effective in preventing infection and is recommended for travelers to countries where hepatitis A is a common infection, and for high-risk adults and children in this country. The vaccine has been shown to be safe and efficacious. Protection against clinical hepatitis A may begin in some persons as soon as 14 days after a single dose of vaccine and nearly all have protective antibody by 30 days.

Clinical Criteria

An acute illness with (a) discrete onset of symptoms and (b) jaundice or elevated serum aminotransferase levels.

Laboratory Criteria for Surveillance Purposes

- Immunoglobulin M (IgM) antibody to hepatitis A virus (anti-HAV) positive.

Surveillance Case Definitions

- *Confirmed:* (a) a case that meets the clinical case definition and is laboratory confirmed
or
(b) a case that meets the clinical case definition and occurs in a person who has an epidemiologic link with a person who has laboratory-confirmed hepatitis A (e.g., household or sexual contact with an infected person during the 15-50 days before the onset of symptoms).

Epidemiology and Trends

<i>2001 Case Total</i>	181
Kansas rate	6.7 per 100,000
U.S. rate (2000)	4.9 per 100,000

Rate by gender

Female	5.2 per 100,000
Male	8.4 per 100,000

Rate by race

White	6.8 per 100,000
African-American	5.2 per 100,000
Asian/Pacific Islander	2.1 per 100,000
Native American	4.1 per 100,000

Rate by ethnicity

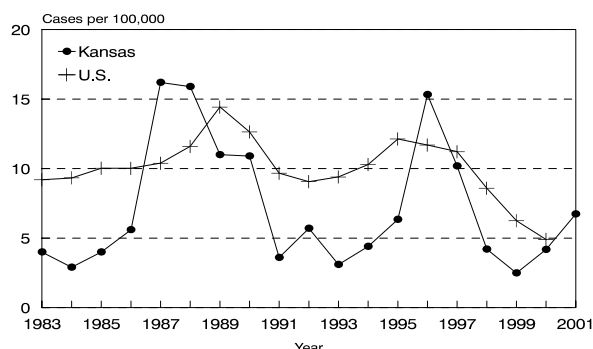
Hispanic	8.0 per 100,000
Non-Hispanic	5.9 per 100,000

Rate by geographic area

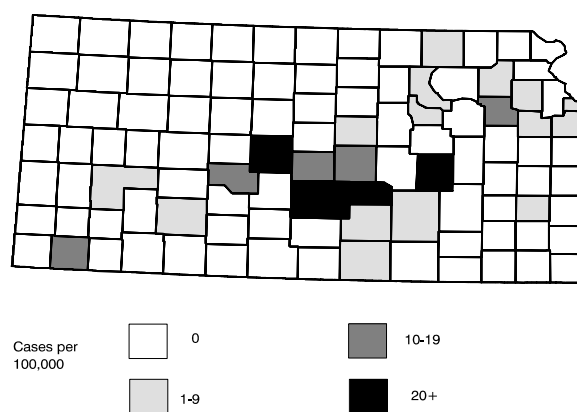
Urban	4.6 per 100,000
Rural	8.8 per 100,000

The incidence of hepatitis A increased by 63% in 2001 from the previous year (111 cases). Three separate localized outbreaks resulted in 133 cases. Two outbreaks were food related, and one was community-based illegal drug use. The three-year median for 1998-2000 was 109 cases. The 2001 cases ranged in age from 5 year to 87 years of age; the median age was 35 years. The highest incidence occurred in the 25-35 and 35-44 year age group, with rates of 12.0 and 13.1 per 100,000, respectively. Eighty-seven percent of the cases occurred in Whites, 4.4% in African-Americans, <1% in Asian/Pacific Islander and Native Americans, and in 7% of cases race was not reported. Of the 181 cases, 8.3% were Hispanics, 81.8% were non-Hispanics, and ethnicity was not reported in 9.9% of cases.

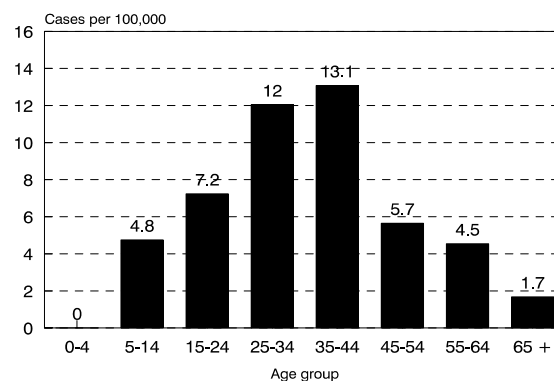
Hepatitis A incidence rate by year
Kansas, 1983-2001



Hepatitis A rate by county
Kansas, 2001



Hepatitis A rate by age group
Kansas, 2001



Risk factors identified during the 2-6 weeks prior to illness included use of street drugs (38%), travel to foreign countries (4.4%), and eating raw shellfish (2.2%). Individuals may have had more than one risk factor.

HEPATITIS B

Hepatitis B (HBV) is a virus that affects the liver. About half of the people who are infected will have symptoms, although in many cases symptoms may be mild and not be attributed to HBV infection. The usual signs and symptoms of acute HBV infection include fever, fatigue, dark urine, muscle or joint pain, loss of appetite, nausea, vomiting, and jaundice (yellow skin and sclera). Only a small portion of infections are clinically recognized; less than 10% of children and 30-50% of adults with acute infection will have jaundice as a symptom. After infection, about 90% of people recover, develop antibodies to the virus, and cannot spread the disease to others. Five to 10 percent cannot clear the virus from their systems and become chronic carriers. Chronic carriers will usually have ongoing inflammation of the liver, continue to be infectious to others, and have an increased risk of developing severe liver disease such as cirrhosis or liver cancer. Transmission occurs via percutaneous or permucosal exposure: i.e., (1) infective blood or body fluids introduced at birth, (2) through sexual contact, or (3) by contaminated needles. Blood (and serum-derived fluids), saliva, semen, and vaginal fluids have been shown to be infectious. The incubation period is usually 45-180 days, average 60-90 days. All persons who are hepatitis B surface antigen (HBsAg) positive are potentially infectious.

Hepatitis B can be prevented by vaccination. Hepatitis B vaccine is recommended for all children at birth, 1-2 and 6-18 months of age or, if not previously received, at 11-12 years of age. Hepatitis B vaccine is also recommended for persons in the following high risk groups: persons with occupational risk, clients and staff of institutions for the developmentally disabled; hemodialysis patients; recipients of certain blood products; household and sexual partners of HBsAg carriers; international travelers visiting high prevalence areas; injecting drug users; sexually active persons with multiple partners; and inmates of long-term facilities.

NOTE: All cases of viral hepatitis (acute and chronic) became reportable conditions in Kansas in 2000.

ACUTE HEPATITIS B

Clinical Criteria

An acute illness with (a) discrete onset of symptoms and (b) jaundice or elevated serum aminotranferase levels.

Laboratory Criteria for Surveillance Purposes

- Immunoglobulin (IgM) antibody to hepatitis B core antigen (anti-HBc) positive (if done) **or** hepatitis B surface antigen (HBsAg) positive.
- IgM anti-HAV negative (if done).

Surveillance Case Definitions

- *Confirmed:* a case that meets the clinical case definition and is laboratory confirmed.

Epidemiology and Trends

2001 Case Total	14
Kansas rate	0.5 per 100,000
U.S. rate (2000)	3.0 per 100,000

Cases by gender

Female	5
Male	9

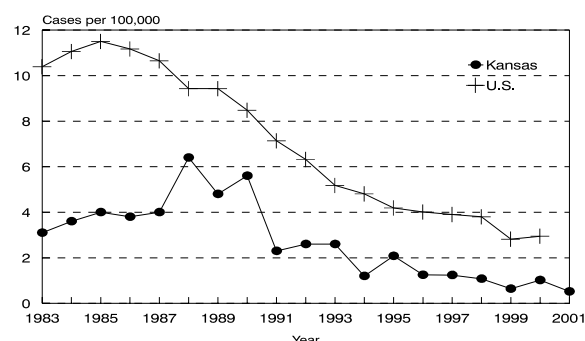
Cases by geographic area

Urban	5
Rural	9

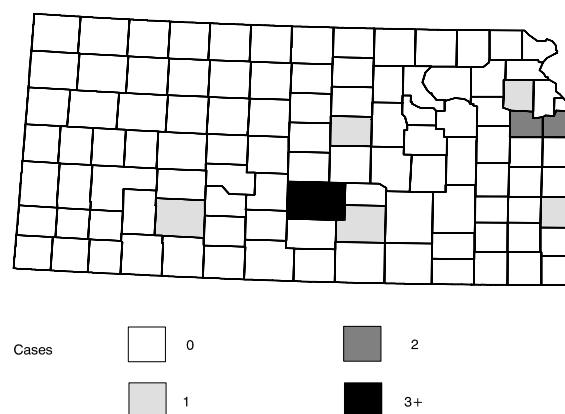
There were 14 confirmed acute hepatitis B cases reported in 2001, a 48% decrease as compared to the 27 cases in 2000; the three-year median for 1998-2000 was 27 cases. The 2001 cases ranged in age from 21 to 68 years of age. The median age was 39 years. Nine cases (64%) were males. The highest incidence occurred in the 35-44 year age group. Sixty-four percent of the cases were reported from rural areas. Risk factors identified from 2 weeks to 6 months prior to the onset of illness included having more than one sexual partners (5%), injection drug use (5%), and needle stick injury (5%). Individuals may have had more than one risk factors.

The national immunization goal for the year 2010 is to achieve a 90% coverage rate among two-year-old children for the complete series of hepatitis B vaccination. Estimated Kansas immunization coverage rate of the National Immunization Survey for the third dose of the hepatitis B vaccine for two year olds was 89.8% (+ 4.7%) in 2000.

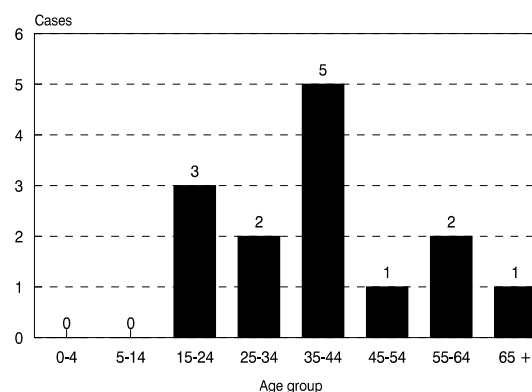
Acute hepatitis B incidence rate by year
Kansas, 1983-2001



Acute hepatitis B cases by county
Kansas, 2001



Acute hepatitis B cases by age group
Kansas, 2001



CHRONIC HEPATITIS B

Clinical Criteria

A chronic illness with or without a history of symptoms of hepatic inflammation.

Laboratory Criteria for Surveillance Purposes

- Hepatitis B surface antigen (HbsAg) positive.

Only about one third of patients have elevated aminotranferase levels, which may fluctuate with intermittent exacerbations of hepatic inflammation.

Surveillance Case Definitions

- *Confirmed:* a case which is HBsAg positive, but which fails to meet the case definition for acute hepatitis B for any other reason*.

*This definition applies for surveillance and reporting purposes in Kansas only.

Comment

- All pregnant women should be screened for HBsAg at the earliest prenatal visit. Infants born to HBsAg (+) mothers should receive hepatitis B immune globulin (HBIG) within 12 hours of birth in addition to hepatitis B vaccine.
- Chronic hepatitis B is not a nationally notifiable disease and there is no national standardized surveillance case definition.

Epidemiology and Trends

<i>2001 Case Total</i>	390
Kansas rate	14.5 per 100,000
U.S. rate (2000)	N/A

Rate by gender

Female	12.8 per 100,000
Male	16.0 per 100,000

Rate by race

White	5.2 per 100,000
African-American	21.4 per 100,000
Asian/Pacific Islander	214.1 per 100,000
Native American	4.0 per 100,000

Rate by ethnicity

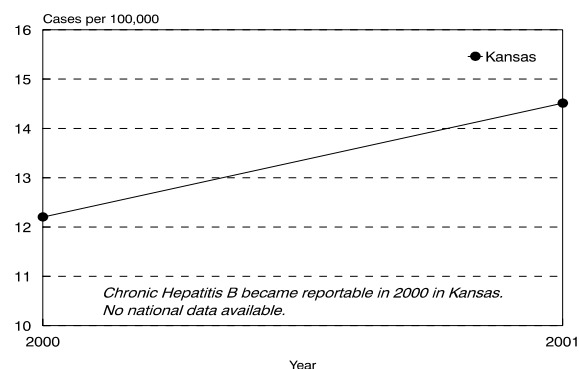
Hispanic	3.7 per 100,000
Non-Hispanic	8.8 per 100,000

Rate by geographic area

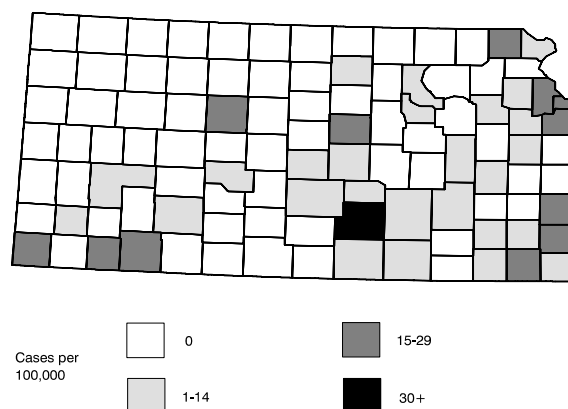
Urban	21.0 per 100,000
Rural	8.2 per 100,000

In 2001, there were 390 chronic hepatitis B prevalent cases reported, a 20% increase as compared to the 324 cases in 2000. This increase may be due to more awareness and improvement in reporting of cases. The prevalent cases are chronic carriers who are HBsAg-positive. The cases ranged from less than 1 to 90 years of age (median = 35). Thirty-one percent of the cases occurred in Whites, 26% in Asian/Pacific Islanders, 9% in African-Americans, and in 34% of the cases race was not reported. Hispanic ethnicity accounted for 2% of the cases, although ethnicity was not reported in 42% of cases. There was a significantly higher proportion of Asian/Pacific Islanders in the population with chronic hepatitis B than in the Kansas population. The largest number of hepatitis B

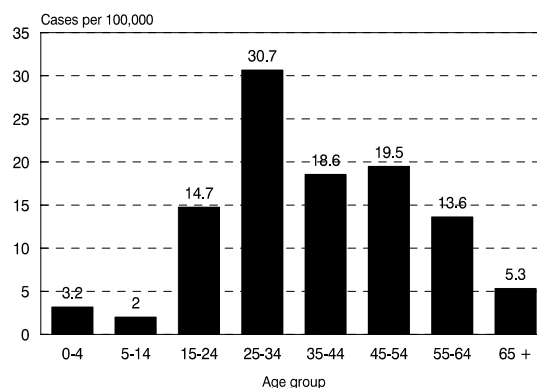
Chronic hepatitis B prevalence rate by year
Kansas, 2000-2001



Chronic hepatitis B rates by county
Kansas, 2001



Chronic hepatitis B rate by age group
Kansas, 2001



chronic cases occurred in the 25-34(107 cases, 30.7/100,000) and 35-44 (78 cases, 18.6/100,000) year age groups. The ratio of urban (279) to rural (111) was 2.5 to one. Risk factors identified included, injection drug use (2%), and <1% reported for having more than one sexual partners, employment in the medical field, blood transfusion, and needle stuck injury. Individuals may have had more than one risk factor.

**Chronic hepatitis B cases by age group
Kansas, 2001**

Age group	Cases
0-4	6
5-14	8
15-24	59
25-34	107
35-44	78
45-54	69
55-64	30
65+	19

HEPATITIS C

Hepatitis C is a liver disease caused by a flavavirus. It is an illness with insidious onset of symptoms that may include anorexia, abdominal discomfort, nausea, and vomiting. Jaundice is seen less frequently than hepatitis B (up to 75% of hepatitis C infected individuals do not have jaundice). Chronic infection is common (85% of cases) and can be symptomatic or asymptomatic. Prior to blood donor screening for this infection, hepatitis C occurred most often in people who had received blood transfusions. More recently, hemodialysis patients and persons who have shared needles (e.g., injective drug users) have been most affected. The incubation period ranges from 2 weeks to 6 months, most commonly 6-9 weeks. It is spread primarily by exchange of contaminated blood with an infected person, such as through a blood transfusion or sharing needles. The risk of sexual transmission has not been thoroughly studied but appears to be less than 5%, similar to perinatal infection.

Up to 20% of acute hepatitis cases have no detectable antibody to hepatitis C virus (anti-HCV) when detected and reported and are classified as non-A, non-B hepatitis. Some (5%-10%) have not yet seroconverted to hepatitis C and others (5-10%) remain negative even after prolonged follow-up. Up to 90% of acute hepatitis C cases become chronic carriers who are able to continue to transmit the disease.

NOTE: All cases of viral hepatitis (acute and chronic) became reportable conditions in Kansas in 2000.

ACUTE HEPATITIS C

Clinical Criteria

An acute illness with (a) discrete onset of symptoms and (b) jaundice or elevated serum aminotranferase levels

Laboratory Criteria for Surveillance Purposes

- Serum aminotranferase levels > 2.5 times the upper limit of normal, *and*
- Immunoglobulin M (IgM) anti-HAV negative *and*
- IgM anti-HBc negative, *and*

For Hepatitis C:

- Antibody to hepatitis C virus (anti-HCV) positive, **verified by a supplemental test****:

For Non-A, Non-B Hepatitis:

- Anti-HCV negative (if done).

Surveillance Case Definitions

C *Confirmed*: a case that meets the clinical case definition and is laboratory confirmed.

**Supplemental tests include RIBA (Recombinant ImmunoBlot Assay), RT-PCR (Reverse Transcriptase Polymerase Chain Reaction), or viral load tests.

Epidemiology and Trends

2001 Case Total	8
Kansas rate	0.3 per 100,000
U.S. rate (2000)	1.2 per 100,000

Cases by gender

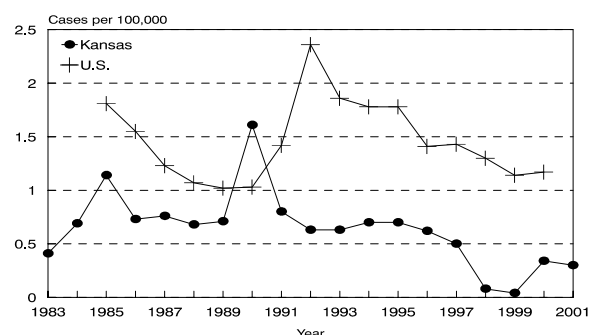
Female	3
Male	5

Cases by geographic area

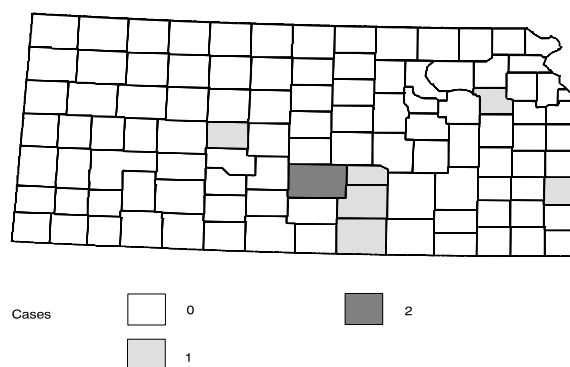
Urban	2
Rural	6

In 2001, there was 12 confirmed acute hepatitis C cases reported. The three-year median for 1998-2000 was 2 cases. The cases ranged from 23 to 56 years of age. The median age was 41 years. The majority of the cases were in Whites (75%) and were reported from rural areas (83%). Risk factors identified from 2 weeks to 6 months prior to illness included having more than one sexual partners (11%), and injection drug use (11%). Individuals may have had more than one risk factor.

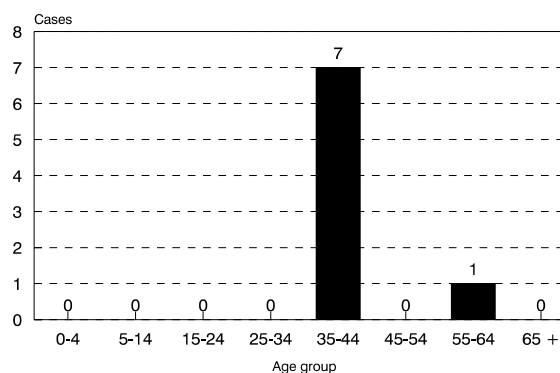
Acute hepatitis C incidence rate by year
Kansas, 1983-2001



Acute hepatitis C cases by county
Kansas, 2001



Acute hepatitis C cases by age group
Kansas, 2001



CHRONIC HEPATITIS C

Clinical Criteria

A chronic illness with or without a history of symptoms of hepatic inflammation. Although initial infection may be asymptomatic or mild (>90% of cases), chronic infection is common (>85% of cases). Of those chronically infected, about half will develop cirrhosis or hepatocellular carcinoma. Liver function tests may be elevated or normal during chronic disease.

Laboratory Criteria for Surveillance Purposes

- Anti-HCV positive (repeat reactive) by Enzyme Immunoassay (EIA), verified by an additional more specific assay (e.g., RIBA for Anti-HCV or RT-PCR for HCV RNA), **or**
- Anti-HCV positive (repeat reactive) by EIA with average signal to cut-off ratio ≥ 3.8 .

Surveillance Case Definitions

- *Confirmed*: a case which is anti-HCV positive (if done) and with a positive supplemental test (PCR or RIBA), **but** which fails to meet the case definition for acute HCV*.

*This definition applies for surveillance and reporting purposely in Kansas only.

Comment

- C Chronic hepatitis C is not a nationally notifiable disease and there is no national standardized surveillance case definition.

NOTE: The HCV screening antibody EIA (enzyme immunoassay) test alone is **NOT** sufficient to diagnose a person with hepatitis C unless specific signal to cut off optical densities are measured. In low prevalence populations, this test may be false positive half the time (hence the need for the confirmatory testing). About 15% of patients with confirmed positive for Hepatitis C antibodies spontaneously cleared their virus. This means that about 85% of patients infected with Hepatitis C virus may become chronic carriers.

Epidemiology and Trends

2001 Case Total	1,143
Kansas rate	42.5 per 100,000
U.S. rate (2000)	N/A

Rate by gender

Female	33.3 per 100,000
Male	51.3 per 100,000

Rate by race

White	21.2 per 100,000
African-American	49.3 per 100,000
Asian/Pacific Islander	39.5 per 100,000
Native American	20.1 per 100,000

Rate by ethnicity

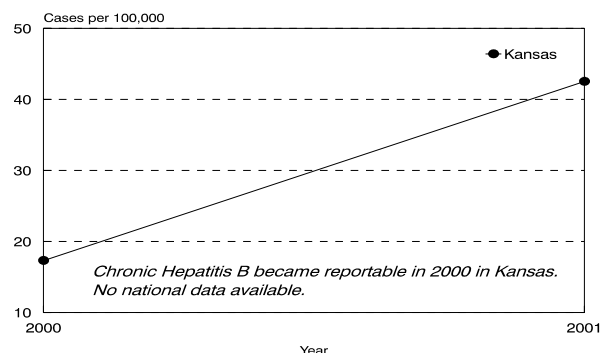
Hispanic	14.9 per 100,000
Non-Hispanic	21.0 per 100,000

Rate by geographic area

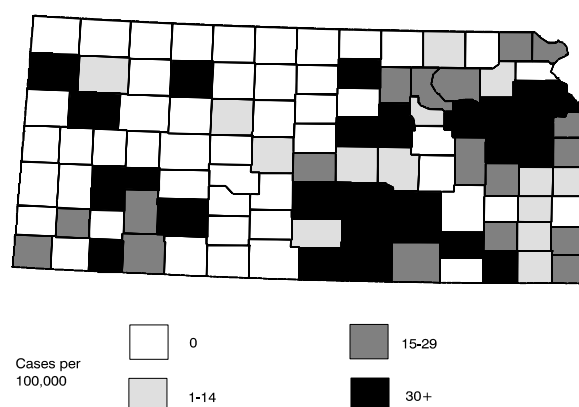
Urban	60.8 per 100,000
Rural	24.6 per 100,000

In 2001, there were 1,143 chronic hepatitis C prevalent cases reported a 150% increase as compared to the 458 cases in 2000. This increase may be due to more awareness and improvement in reporting of cases. The cases ranged from less than 1 to 91 years of age (median = 44). The ratio of female (453) to male (682) was 1:1.5. Forty-three percent of the cases occurred in Whites, 7% in African-Americans, 2% in Asian/Pacific Islanders, <1% in Native American and in 48% of the cases race was not reported. Of the 554 cases where ethnicity was noted, 5% were Hispanic. The largest number of hepatitis C chronic cases occurred in the 35-44 (453 cases, 107.8/100,000) and 45-54 (440 cases, 124.2/100,000) year age groups. The ratio of rural (334) to urban (809) was 1:2.4. Most

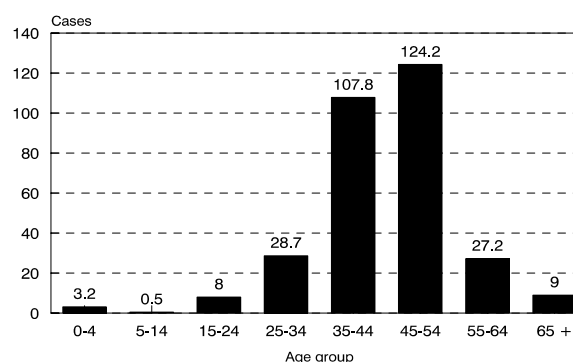
Chronic hepatitis C prevalence rate by year
Kansas, 2000-2001



Chronic hepatitis C rates by county
Kansas, 2001



Chronic hepatitis C rate by age group
Kansas, 2001



current risk factors identified included injection drug use (15%), needle stick injury (6%), and having more than one sexual partners (2%). Individuals may have had more than one risk factor.

More information on hepatitis C in Kansas can be found in section II (Special Project).

HEPATITIS D (Delta)

The hepatitis D virus (HDV) or Delta agent is an independent infective agent that it can only cause illness in the presence of the hepatitis B virus. Onset is usually abrupt, with signs and symptoms resembling those of hepatitis B. The disease may be severe and is always associated with a coexistent hepatitis B virus infection. Delta hepatitis may be self-limiting or it may progress to chronic hepatitis. Children may have particularly severe clinical course with usual progression to chronic active hepatitis. The incubation period is an approximately 2-8 weeks. The mode of transmission is thought to be similar to that of HBV - by exposure to infected blood and serous body fluids, contaminated needles, syringes and plasma derivatives such as antihemophilic factor, and through sexual transmission.

Clinical Criteria

An acute illness with (a) discrete onset of symptoms and (b) jaundice or elevated serum aminotranferase levels.

Laboratory Criteria for Surveillance Purposes

- Hepatitis B surface antigen (HbsAg) *or* immunoglobulin (IgM) antibody to hepatitis B core antigen positive **and** antibody to hepatitis delta virus positive.

Surveillance Case Definition

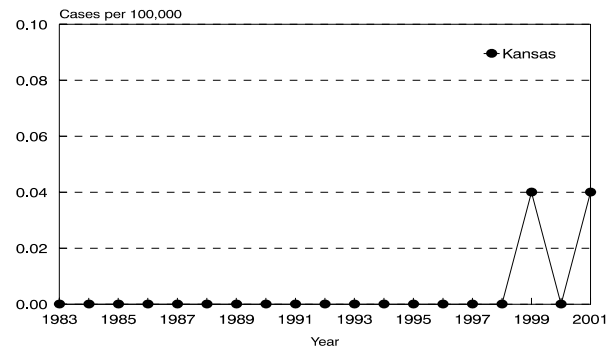
- Confirmed: a case that meets the clinical case definition and is laboratory confirmed.

Epidemiology and Trends

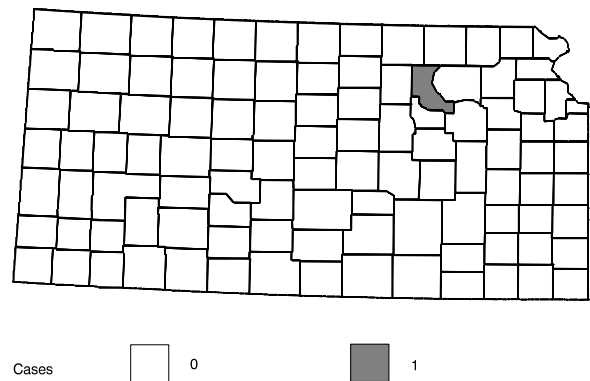
2001 Case Total 1
 Kansas rate <0.1 per 100,000
 U.S. rate (2000) N/A

In 2001, there was one confirmed hepatitis D case reported. This was the second case of hepatitis D reported in Kansas since 1999 and the individual was also reported to be infected with hepatitis B.

Hepatitis D incidence rates by year
 Kansas, 1983-2001



Hepatitis D cases by county
 Kansas, 2001



INFLUENZA

Influenza, more commonly called “flu,” is a highly contagious viral infection of the nose, throat, bronchial tubes and lungs. There are two main types of virus - A and B. Each type includes many different strains which tend to change each year. Influenza occurs most often in the winter months. Illnesses resembling influenza may occur in the summer months but they are often due to other viruses. Typical flu symptoms include headache, fever, chills, cough, and body aches. Intestinal symptoms are uncommon and are not included in the definition of a clinical case. Although most people are ill for only a few days, some people have a more serious illness, such as pneumonia, and may need to be hospitalized. Thousands of people die each year in the United States from the flu or related complications. Anyone can get influenza, but the disease is most serious in the elderly, or in people with chronic illnesses such as cancer, emphysema, diabetes, or weak immune systems. The incubation period is short, usually 1-3 days. Influenza is highly contagious and is easily transmitted through contact with droplets from the nose and throat of an infected person during coughing and sneezing.

Influenza vaccination is available to reduce the likelihood of infection or lessen the severity of the disease. Immunity to one strain of the influenza virus does not confer immunity to other strains. Consequently, the three strains included in the vaccine vary from year to year depending on strains expected to be in circulation for that season. Annual vaccination for influenza is also necessary because immunity declines rapidly over time. People should be vaccinated before influenza is seen in the community, which, in the United States, is from November through March. Thus, beginning each September, influenza vaccine should be offered to high-risk individuals when seen for routine care or when hospitalized. Organized vaccination campaigns are usually held from October through mid-November.

Clinical Criteria

C Fever ($\geq 100^{\circ}\text{F}$ [37.8°C], oral or equivalent) **AND** cough or sore throat.

Laboratory Criteria for Surveillance Purposes

- Isolation of influenza virus from a throat specimen.

Surveillance Case Definitions

- *Confirmed*: a case that meets the clinical case definition and is laboratory confirmed.

Comment

- During the 2001-2002 influenza season, sentinel physician-based active influenza surveillance was conducted in cooperation with the CDC. The surveillance began on

September 30, 2001 and ended on May 18, 2002. Twenty-three physicians, university student centers, and hospitals volunteered to be sentinel physicians/sites. Each week sentinel sites were contacted by telephone to determine the number of patients seen with influenza-like-illness by four age groups and total patient visits for all reasons. Participants were asked to report these figures to CDC via telephone or internet. Influenza-like-illness is defined as fever ($\geq 100^{\circ}\text{F}$ [37.8°C], oral or equivalent) AND cough or sore throat (in the absence of a known cause). Physicians were also asked to collect pharyngeal swabs from patients presenting with influenza-like-illness and send them to the Department of Health and Environmental Laboratory (DHEL). The DHEL conducted viral isolation and identification by influenza type and subtype. Aggregate information from Kansas was sent weekly to the CDC.

- **Influenza strains contained in the 2002-2003 vaccine:** The trivalent influenza vaccine prepared for the 2002-2003 season will include A/Moscow/10/99 (H3N2)-like, A/new Caledonia/20/99 (H1N1)-like, and B/Hong Kong/330/2001-like strains. The 2000-2001 strains were A/Moscow/10/99 (H3N2)-like, A/new Caledonia/20/99 (H1N1)-like, and B/Beijing/184/93-like strains.

Epidemiology and Trends

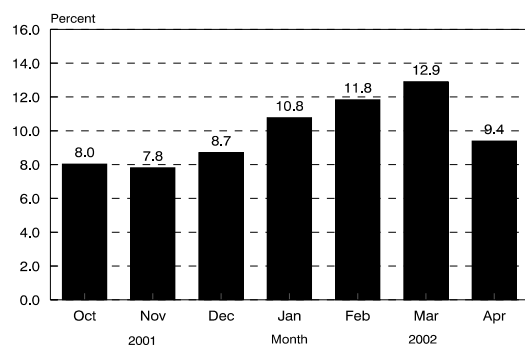
During the 2001-2002 influenza season, the trends observed in Kansas were reflected in much of the U.S., with increasing flu-like activity occurring in late December and peaking during mid January through February, 2002. As seen nation wide, influenza type A were isolated earlier in the season and influenza B later. There seemed to be a distinct demarcation in Kansas: no influenza B cases were detected until one month after the last influenza A case was reported. In the U.S., it seemed that as overall influenza activity decreased dramatically, the proportion of isolates that were influenza B increased consistently.

As of May 31, 2002, there were 159 specimens tested at the Kansas Health and Environmental Laboratory. Of the 47 positive specimens, 42 (89%) were type A, with 41 subtyped as H3N2 and one unable to subtype;

five (11%) were type B, subtyped as Victoria/2/87. Both identified strains were included in this year's vaccine.

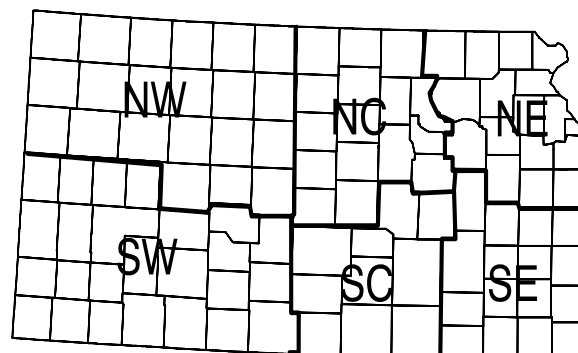
During the influenza season, February showed the highest percentage of deaths due to influenza/pneumonia. As seen in the previous seasons, ninety percent of deaths (1,435/1,599) where influenza and pneumonia were either the underlying or multiple cause, were among people aged 65 and over. Deaths from both influenza and pneumonia are combined and presented here because most deaths from influenza are caused by secondary bacterial pneumonia rather than the primary influenza virus. Combining the two categories over-represents deaths due to influenza alone but is a better reflection of the trends than would be represented by only reported influenza deaths.

Percent of deaths due to pneumonia and influenza,
October, 2001 - April, 2002, Kansas



Total deaths (October, 2001 - April, 2002) = 15,955

Geographic regions in Kansas



Test results* for influenza

Analyzed for influenza	159
Influenza A (+)	42
Typed (all H3N2)	41
FA (+)	1
Influenza B (+)	5
Typed (Victoria/2/87)	5
Influenza (-)	97
Other viruses	10
Adenovirus	3
Enterovirus	2
Herpes simplex virus	3
Parainfluenza	1
RSV	1

*Only results from specimens submitted to the DHEL are presented.

Geographic Area (# spec. analyzed)	Pos A		Pos B	
	N	(%)	N	(%)
NE (62)	14	(23%)	0	(0%)
NC (18)	2	(11%)	0	(0%)
NW (2)	1	(50%)	0	(0%)
SE (19)	1	(5%)	0	(0%)
SC (57)	24	(42%)	5	(100%)
SW (1)	0	(0%)	0	(0%)
Total (159)	42	(26%)	5	(3%)

Age group	Specimens analyzed	Pos A N (%)	Pos B N (%)
< 12	50	14 (28%)	4 (8%)
12 - 19	20	3 (2%)	1 (5%)
20 - 39	47	15 (32%)	0 (0%)
> 39	42	10 (24%)	0 (0%)
Total	159	42 (26%)	5 (3%)

PEDIATRIC LEAD POISONING

Although not an infectious disease, lead poisoning is one of the most common and preventable pediatric health problems affecting Kansas children. In young children, lead levels above 10 : g/dL can affect the developing nervous system, resulting in delayed development, decreased IQ, and learning and behavior problems. Higher lead levels (greater than 20 : g/dL) can have adverse effects on the kidneys and blood-producing organs as well as the digestive and reproductive systems. Very high blood lead levels (greater than 70 : g/dL) can cause devastating health consequences, including seizures, coma, and death. The developing fetus is very susceptible to the lead exposure and blood lead levels of the mother. Children under six years most often become lead-poisoned by ingesting lead contaminated dust through the frequent hand-to-mouth activity typical of this age group such as thumb-sucking, or chewing on toys, pacifiers and other objects that have been in contact with dust and soil. Lead-based paint in homes built before 1978 is the most common source of lead exposure for children when painted surfaces are peeling, deteriorating, or disturbed during renovation or remodeling. Other potential sources of lead poisoning include water from leaded pipes, occupational or hobby exposure of the parent, soil contaminated from previous industry and leaded gas emissions, and food contaminated by imported dishes or cans containing lead. Children are considered to be at high risk for lead poisoning if they:

- C Live in or regularly visit a house that was built before 1950.
- C Live in or regularly visit a house built before 1978 with recent or ongoing renovations or remodeling (within the last six months).
- C Have a sibling or playmate who has or did have lead poisoning.
- Live with an adult with occupational or recreational exposure to lead.

The common warning signs of lead poisoning such as headache, stomachache, fatigue, loss of appetite or sleep disturbance, can easily be mistaken for common childhood problems. Most children have no symptoms of lead poisoning until the blood lead levels are very high. A blood lead test is the only way to tell if a child has an elevated blood level and is recommended as part of standard pediatric check-ups. Blood lead testing is mandated as part of the Kansas Be Healthy health assessment for children under six receiving Medicaid benefits.

Based on 1998 CDC guidelines, Kansas has a universal screening recommendation: Using a blood lead test, screen all children at 12 and 24 months of age, and screen all children from 36-72 months of age who have not been screened previously. High risk children should have a first blood lead test at six months of age.

Intervention activities should be triggered by blood lead levels ≥ 10 : g/dL. Children with blood lead levels ≥ 15 $\mu\text{g/dL}$ should receive individual case management, including nutritional and educational interventions and more frequent screening. Medical evaluation and environmental investigation and remediation should be done for all children with blood levels ≥ 20 : g/dL.

Laboratory Criteria for Surveillance Purposes

- Venous blood lead level ≥ 10 : g/dL, **or**
- Capillary blood lead results ≥ 10 : g/dL confirmed by retesting with venous blood, **or**
- Two capillary blood lead results ≥ 10 : g/dL within 12 weeks of each other.

Surveillance Case Definitions

- *Confirmed*: a case that is laboratory confirmed.

Comment: More detailed information on lead in Kansas is available at: www.kdhe.state.ks.us/lead.

Epidemiology and Trends

2001 Case Total	262
Kansas rate (age-specific)	98.8 per 100,000
U.S. rate (2000)	N/A

Rate by gender

Female	90.1 per 100,000
Male	101.9 per 100,000

Rate by geographic area

Urban	59.1 per 100,000
Rural	142.5 per 100,000

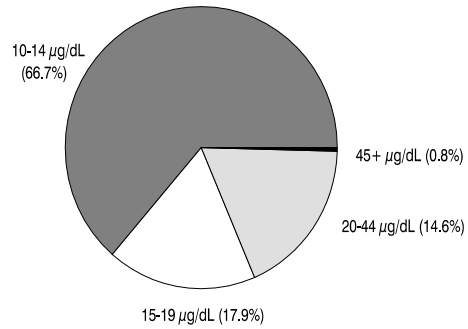
In 2001, the number of **confirmed** pediatric lead poisoning cases reported was 262 cases, an 179% increase from 94 cases in 2000. This increase is due, in part, to an increase in the number of children screened, 7,100 in 2000 compared to 10,529 in 2001. This increase may also be due to the screening of a greater proportion of high risk children, or an actual increase in the incidence of elevated blood levels among Kansas children.

In 2001, the ratio of cases reported by DHEL (112 cases) to those reported by private labs (150 cases) was about 1:1.3. Results on both

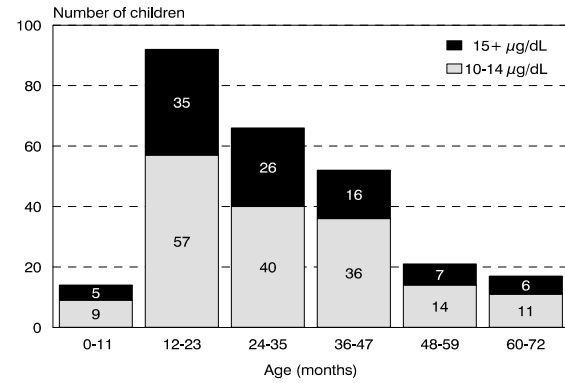
positive and negative specimens analyzed by DHEL are available, with a positive rate of 1.1%. Since only positive results are available from private laboratories, it is not possible to assess positivity rates in private facilities.

In 2001, 49 cases (18.7%) had a blood lead level ≥ 20 : g/dL, a level that might warrant an environmental risk assessment. The pediatric cases ranged in age from 3 to 71 months. The median age was 25 months. The 12-23 month age group accounted for 35% of the reported cases and represented the highest incidence and highest blood lead levels of pediatric poisoning. The ratio of male to female was about one to one. Distribution of cases by race/ethnicity was not available. The ratio of urban to rural was about 1:2.

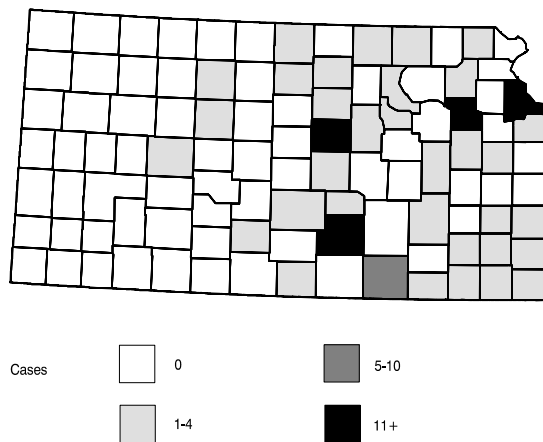
Positive Blood lead results for children 0 to 72 months
Kansas, 2001



Pediatric lead poisoning cases by age group
Kansas, 2001



Pediatric lead poisoning cases by county
Kansas, 2001



Differences in the number of cases by geographic area may be attributable to variations in screening practices.

LEGIONELLOSIS

Legionellosis is a bacterial disease caused by Gram-negative bacilli, *Legionellae*. Legionellosis is associated with two clinically and epidemiologically distinct illnesses: Legionnaires disease, which is characterized by fever, myalgia, cough, and pneumonia and Pontiac fever, a milder illness without pneumonia. It is called legionellosis because of an outbreak of this disease in Philadelphia in 1976, largely among people attending a state convention of the American Legion. Subsequently, the bacterium causing the illness was named *Legionella pneumophila*. The incubation period is 2-10 days, most often 5-6 days for Legionnaire's disease; 24-48 hours for Pontiac fever. *Legionella spp.* are widely distributed in the environment. They have been found in creeks and ponds, hot and cold water taps, hot water tanks, water in air conditioning cooling towers and evaporative condensers, and soil at excavation sites. The disease appears to be spread through the air from a soil or water source; other modes are possible, but none has been proven conclusively. All studies to date have shown that person-to-person spread does not occur and underlying illness often plays a role. Most cases have been sporadic occurrences, but outbreaks do occur. Legionellosis occurs most frequently with increasing ages, especially in patients who smoke and in those with diabetes mellitus, chronic lung disease, renal disease or malignancy; and in the immunocompromised, particularly those who are receiving corticosteroids or who have had an organ transplant.

Laboratory Criteria for Surveillance Purposes

- Isolation of *Legionella* from respiratory secretions, lung tissue, pleural fluid, or other normally sterile fluids, ***or***
- Demonstration of a fourfold or greater rise in the reciprocal immunofluorescence antibody (IFA) titer to ≥ 128 against *Legionella pneumophila* serogroup 1 between paired acute-and convalescent-phase serum specimens, ***or***
- Detection of *L. pneumophila* serogroup 1 in respiratory secretions, lung tissue, or pleural fluid by direct fluorescent antibody testing, ***or***
- Demonstration of *L. pneumophila* serogroup 1 antigens in urine by radioimmunoassay or enzyme-linked immunosorbent assay.

Surveillance Case Definitions

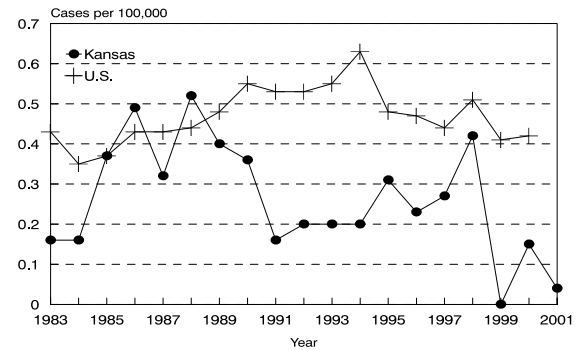
- *Confirmed*: a clinically compatible case that is laboratory confirmed.

Epidemiology and Trends

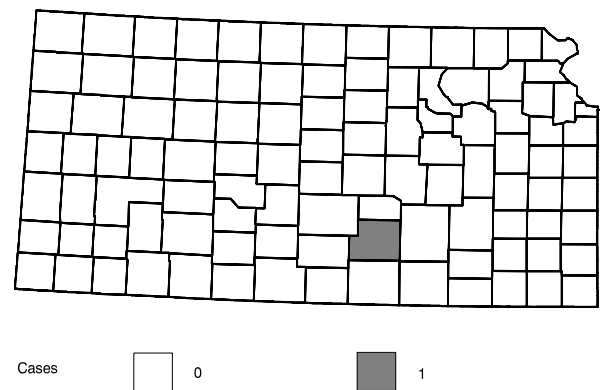
<i>2001 Case Total</i>	1
Kansas rate	<0.1 per 100,000
U.S. rate (2000)	0.4 per 100,000

In 2001, there was one reported Legionellosis cases. The three year median for 1998-2000 was 4 cases. The case was reported of having diabetes and congestive heart failure as contributing risk factors.

Legionellosis incidence rate by year
Kansas, 1983-2001



Legionellosis cases by county
Kansas, 2001



LISTERIOSIS

The bacterium *Listeria monocytogenes* causes Listeriosis, a rare but serious foodborne disease. Though it results in only about 2,500 cases of the estimated 76 million foodborne illnesses per year in the U.S., Listeriosis produces 27% of the deaths from foodborne pathogens. The organism is found in most products and thrives in refrigeration temperature (40°F). The case-fatality rate for the disease is 15%. Listeriosis also produces the highest rate of hospitalization of any foodborne illness. Among FoodNet* sites in 1999, it caused 89% of all of the hospitalizations that occurred as a result of foodborne illness. *Listeria* may cause meningitis and severe neurologic sequelae. Pregnant women are at increased risk for listeriosis and they are approximately 20 times more likely than other healthy adults to get the disease. About one-third of cases occur during pregnancy; this can lead to premature delivery, infection of the newborn, or stillbirth. Newborns, rather than their mothers, suffer the serious effects of the infection in pregnancy. Other groups at increased risk include people with HIV/AIDS, cancer, diabetes, kidney disease, those who take glucocorticosteroids, and the elderly. These groups usually present with sepsis, meningitis, or meningo-encephalitis. Listeriosis has also caused foodborne outbreaks of acute gastroenteritis in groups of people who were not immunocompromised.

*FoodNet is an acronym for the Foodborne Diseases Active Surveillance Network. The project consists of active surveillance for foodborne diseases and related epidemiologic studies designed to help public health officials better understand the epidemiology of foodborne diseases in the United States. It provides a network for responding to new and emerging foodborne diseases of national importance, monitoring the burden of foodborne diseases, and identifying the sources of specific foodborne diseases.

Clinical Criteria

- Infection caused by *Listeria monocytogenes*, which may produce any of several clinical syndromes, including stillbirth, Listeriosis of the newborn, meningitis, bacteremia, or localized infection.

Laboratory Criteria for Surveillance Purposes

- Isolation of *Listeria monocytogenes* from a normally sterile site (e.g., blood or cerebrospinal fluid or, less commonly, joint, pleural, or pericardial fluid).

Surveillance Case Definitions

- *Confirmed:* a case that is laboratory confirmed.
- *Probable:* a clinically compatible case without laboratory confirmation

Note: Listeriosis became a nationally notifiable disease in 2000.

LYME DISEASE

Lyme disease is a bacterial infection caused by the spirochete, *Borrelia burgdorferi*. The first cluster of disease cases associated with this bacteria was discovered among children with arthritis near Lyme, Connecticut. Lyme disease may cause symptoms affecting skin, nervous system, heart and/or joints of an individual, but it is almost never fatal. A systemic, tickborne disease, it is often multistage. The best clinical marker for the disease is the initial skin lesion (i.e., erythema migrans [EM]) that occurs in 60%-80% of patients 3 to 32 days after tick exposure. However, the early stages of the illness may be asymptomatic, and the patient may present with later manifestations. The infection is transmitted by ticks, the most important being the deer tick (*Ixodes scapularis*) and the western black-legged tick (*Ixodes pacificus*).

A vaccine against lyme disease was available in 2001, but has since been withdrawn by the manufacturer.

Clinical Criteria

Erythema Migrans (EM)

EM is defined as a skin lesion that typically begins as a red macule or papule and expands over a period of days to weeks to form a large round lesion, often with partial central clearing. A single primary lesion must reach 5 cm in size. Secondary lesions also may occur. Annular erythematous lesions occurring within several hours of a tick bite represent hypersensitivity reactions and are not EM. For most patients, the expanding EM lesion is accompanied by other acute symptoms, particularly fatigue, fever, headache, mildly stiff neck, arthralgia, or myalgia. These symptoms are typically intermittent. The diagnosis of EM must be made by a physician. Laboratory confirmation is recommended for persons with no known exposure.

Late manifestations

1. *Musculoskeletal system*

Recurrent, brief attacks (weeks or months) of objective joint swelling in one or a few joints. Manifestations not considered as criteria for diagnosis include chronic progressive arthritis not preceded by brief attacks and chronic symmetrical polyarthritis. Additionally, arthralgia, myalgia, or fibromyalgia syndromes alone are not criteria for musculoskeletal involvement.

2. *Nervous system*

Any of the following, alone or in combination: lymphocytic meningitis; cranial neuritis, particularly facial palsy (may be bilateral); radiculoneuropathy; or, rarely, encephalomyelitis. Encephalomyelitis must be confirmed by demonstration of antibody

production against *B. burgdorferi* in the CSF, evidenced by a higher titer of antibody in CSF than in serum. Headache, fatigue, paresthesia, or mildly stiff neck alone are not criteria for neurologic involvement.

3. *Cardiovascular system*

Acute onset of high-grade (2/ or 3/) atrioventricular conduction defects that resolve in days to weeks and are sometimes associated with myocarditis. Palpitations, bradycardia, bundle branch block, or myocarditis alone are not criteria for cardiovascular involvement.

Laboratory Criteria for Surveillance Purposes

- Isolation of *Borrelia burgdorferi* from a clinical specimen ***or***
- Demonstration diagnostic immunoglobulin M or immunoglobulin G antibodies to *B. burgdorferi* in serum or cerebrospinal fluid (CSF). A two-test approach using a sensitive enzyme immunoassay or immunofluorescence antibody followed by Western blot is recommended.

Surveillance Case Definition

- *Confirmed:* (a) a case with EM ***or***
(b) a case with at least one late manifestation that is laboratory confirmed.

NOTE: The spirochete (*Borrelia burgdorferi*) that causes Lyme disease has not been reported as isolated by culture in Kansas.

In 2001, there were 2 cases of Lyme disease reported. One case reported having EM and the other case having rheumatic signs.

The graph displays the incidence of cases per 100,000 for Kansas and the United States from 1988 to 2001. The U.S. data is represented by a line with '+' markers, and the Kansas data is represented by a line with '•' markers. The U.S. shows a significant peak in 1996, while Kansas shows a peak in 1993. Both states show a decline in cases after 1996, with Kansas reaching its lowest point in 2001.

Year	Kansas (Cases per 100,000)	U.S. (Cases per 100,000)
1988	0.2	2.0
1989	0.7	3.6
1990	0.9	3.2
1991	0.9	3.8
1992	0.7	4.0
1993	2.2	3.2
1994	0.7	5.0
1995	0.9	4.5
1996	1.4	6.2
1997	0.2	4.8
1998	0.4	6.4
1999	0.6	6.0
2000	0.6	6.5
2001	0.1	-

Cases

0

1

MALARIA

Malaria is a parasitic infection caused by *Plasmodium vivax*, *P. ovale*, *P. malariae*, or *P. falciparum*. Signs and symptoms are variable; however, most patients experience fever. In addition to fever, commonly associated symptoms include headache, back pain, chills, sweats, myalgia, nausea, vomiting, diarrhea, and cough. Untreated *P. falciparum* infection can lead to coma, renal failure, pulmonary edema, and death. The diagnosis of malaria should be considered for any person who has these symptoms and who has traveled to an area in which malaria is endemic. Asymptomatic parasitemia can occur among persons who have been long-term residents of areas in which malaria is endemic. The time between the infective bite and the appearance of clinical symptoms is 7-14 days for *P. falciparum*, 8-14 days for *P. vivax* and *P. ovale*, and 7-30 days for *P. malariae*. With some strains of *P. vivax* and *P. ovale* from temperate areas, there may be a protracted incubation period of 8-10 months or longer. Malaria is spread through the bite of an infective female *Anopheles* spp. mosquito. Most species feed at dusk and during early night hours; some important vectors have biting peaks around midnight or the early hours of the morning.

Laboratory Criteria for Surveillance Purposes

- Demonstration of malaria parasites in blood films.

Surveillance Case Definitions

- *Confirmed*: an episode of microscopically confirmed malaria parasitemia in any person (symptomatic or asymptomatic) diagnosed in the United States, regardless of whether the person experienced previous episodes of malaria while outside the country. Therefore cases can be counted more than once in a lifetime.

Comment

- A subsequent attack experienced by the same person but caused by a different *Plasmodium* spp. is counted as an incident case. A subsequent attack experienced by the same person and caused by the same species in the United States may indicate a relapsing infection or treatment failure caused by drug resistance.

Epidemiology and Trends

2001 Case Total	6
Kansas rate	0.2 per 100,000
U.S. rate (2000)	0.6 per 100,000

Cases by gender

Female	2
Male	4

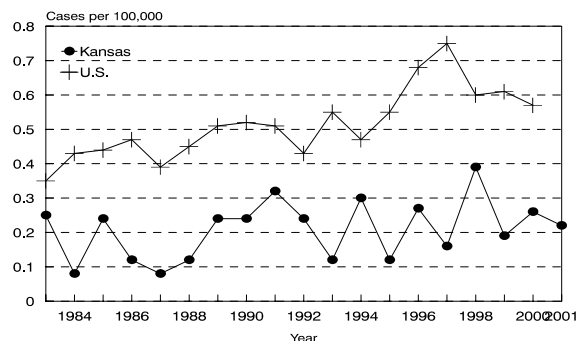
Cases by geographic area

Urban	5
Rural	1

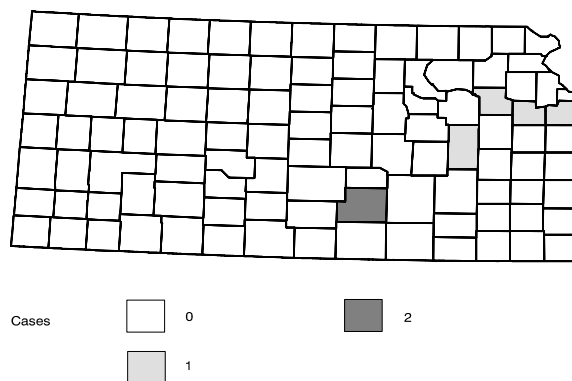
In 2001, there were 6 cases of malaria reported. The cases ranged in age from 24 to 59 years with a median age of 37. Three of the reported cases were U.S. citizens that had foreign travel history and three were in persons from a foreign country where malaria is present. Cases had been in the following geographic areas: Bolivia (1), India (1), Kenya (1), Nigeria (2), S. Africa (1), Singapore (1), and Venezuela(1); individuals may have traveled to more than one country.

The following species of malaria were identified in cases: *P. falciparum* (4), *P. vivax* (1), and undetermined (1). None of the case reported taking malaria prophylaxis.

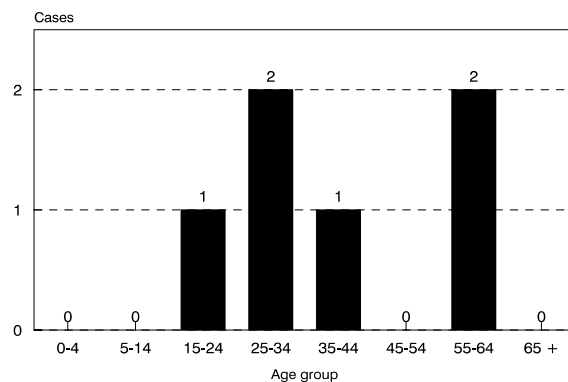
Malaria incidence rate by year
Kansas, 1983-2001



Malaria cases by county
Kansas, 2001



Malaria cases by age group
Kansas, 2001



MEASLES (Rubeola)

Measles is an extremely contagious viral disease caused by measles virus, a member of the family *Paramyxoviridae*, that can be prevented by vaccination. Measles causes a rash, sometimes with mild itching, and is always accompanied by fever and a hacking cough and sometimes by eye sensitivity to light. The fever usually subsides in 3 to 5 days, and patients are contagious 1-2 days before the onset of symptoms to 4 days after the rash appears. The vast majority of children recover completely from measles, but serious complications can occur. These include pneumonia, ear infection, and encephalitis (inflammation of the brain). Measles encephalitis may cause permanent brain damage and can occasionally result in death. The incubation period is about 10 days, varying from 7 to 18 days from exposure to onset of fever, usually 14 days until rash appears. It is spread through the air by droplets from the nose, throat, and mouth of an infected person.

The vaccine is available as a single antigen preparation, combined with rubella vaccine, or combined with mumps and rubella vaccines. The current recommendation in the USA is a routine 2-dose measles vaccine schedule, with the initial dose administered at 12-15 months of age. The second dose should be given at school entry (4-6 years of age). Both doses should generally be given as combined measles-mumps-rubella vaccine (MMR).

Laboratory Criteria for Confirmation

- C Positive serologic test for measles immunoglobulin M antibody, **or**
- C Significant rise in measles antibody level by any serologic assay, **or**
- C Isolation of measles virus from a clinical specimen

Surveillance Case Definitions

An illness characterized by all the following:

- (a) a generalized rash lasting ≥ 3 days
- (b) a temperature ≥ 101.0 °F (≥ 38.3 °C)
- (c) cough, coryza, or conjunctivitis

- *Confirmed*: a case that is laboratory confirmed or that meets the clinical case definition and is epidemiologically linked to a confirmed case. A laboratory -confirmed case does not need to meet the clinical case definition.
- *Probable*: a case that meets the clinical case definition, has noncontributory or no serologic or virologic testing, and is not epidemiologically linked to a confirmed case.
- *Suspected*: any febrile illness accompanied by rash.

Comment

- **Report suspect cases by telephone immediately.**

- All suspected, probable, and confirmed cases of measles are reportable and reviewed by the KDHE Immunization Program staff for appropriate control measures.
- An *indigenous* case is defined as a case of measles that is not imported. Cases that are linked to imported cases should be classified as indigenous if the exposure to the imported case occurred in the reporting state. Any case that cannot be proved to be imported should be classified as indigenous.

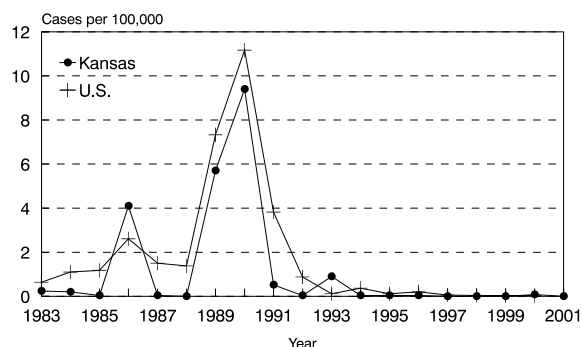
Epidemiology and Trends

2001 Case Total 0
 U.S. rate (2000) <0.1 per 100,000

In 2001, there was no reported measles cases in Kansas. Since 1992, there have been 0-2 cases reported annually in the state. The last reported case of measles was in 2000.

The national measles immunization goal for the year 2010 is to achieve a 90% coverage rate among two-year-old children for the complete series of measles vaccinations. Estimated Kansas immunization coverage rate of the National Immunization Survey for the first dose of the measles, mumps, and rubella vaccine (MMR1) was 86.0% (\pm 5.1%) in 2000.

Measles incidence rate by year
 Kansas, 1983-2001



MENINGITIS, BACTERIAL

(non-meningococcal, non-*Haemophilus influenzae* type B)

Bacterial meningitis is a generic term defined as inflammation of the membranes of the spinal cord or brain caused by bacteria that reach the meninges via blood or lymph through trauma, or from adjacent body structures (e.g. sinuses, mastoid cells). For the purpose of this document bacterial meningitis is defined as a group of diseases characterized by infection of the meninges caused by a bacteria other than *Neisseria meningitidis* or *Haemophilus influenzae* type b, and excludes aseptic meningitis.* Symptoms can include fever, headache, stiff neck, vomiting, and rash. The incubation period ranges from 2 to 10 days. Mode of transmission is by direct person-to-person contact, including respiratory droplets from nose and throat of infected people. Post-exposure prophylaxis of contacts is generally not recommended.

Laboratory Criteria for Surveillance Purposes

- Isolation and identification of a bacterial pathogen from the CSF or blood.

Surveillance Case Definitions

- *Confirmed*: a clinically compatible case that is laboratory confirmed or has a positive blood culture.

Comment

- **Report suspect cases by telephone immediately.**
- Kansas laws require that isolates be sent to the Kansas Health and Environmental Laboratory for serotyping.

* Viral (aseptic) meningitis is not reportable in Kansas.

Epidemiology and Trends

2001 Case Total	22
Kansas rate	0.8 per 100,000
U.S. rate (2000)	N/A

Cases by gender

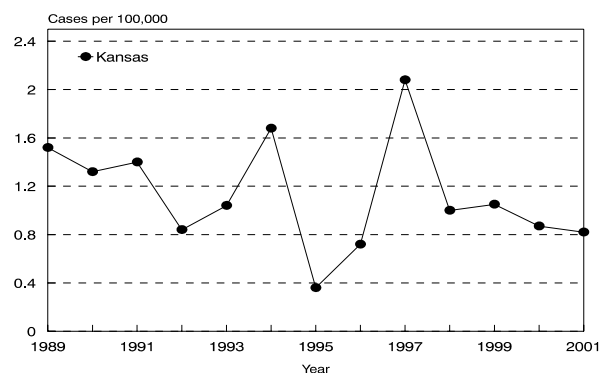
Female	11
Male	11

Cases by geographic area

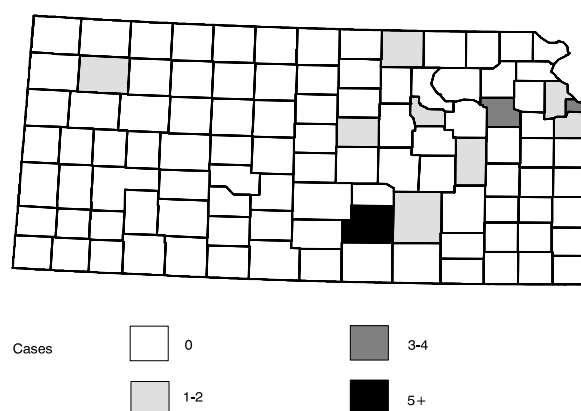
Urban	15
Rural	7

In 2001, there were 22 bacterial meningitis cases reported. All cases appeared to be sporadic. The three-year median for 1998-2000 was 25 cases. The cases ranged in age from less than 1 year to 75 years; median was 46 years. The ratio of female to male was one to one. All isolates were speciated. The following species of bacteria were identified in cases: *Streptococcus pneumoniae* (19), *Pseudomonas* (1), and *Alpha hemolytic streptococcus* (1).

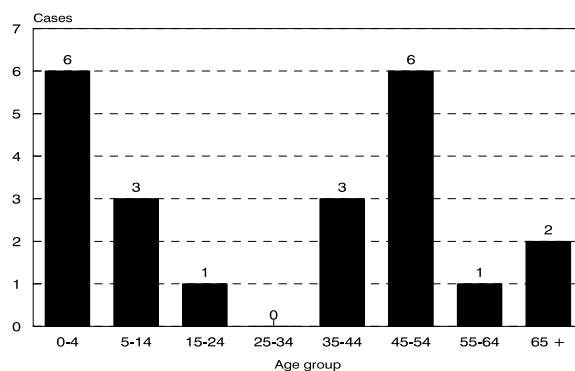
Bacterial Meningitis incidence rate by year
Kansas, 1989-2001



Bacterial Meningitis cases by county
Kansas, 2001



Bacterial Meningitis cases by age group
Kansas, 2001



MENINGOCOCCAL DISEASE

Meningococcal disease is an acute bacterial disease caused by *Neisseria meningitidis*, a Gram-negative diplococcus. The most common serogroups of *N. meningitidis* in the U.S. are B, C, W-135, and Y. Late winter to early spring is the peak season for infection, but infections can occur at any time of the year. Even with early diagnosis and appropriate treatment, the fatality rate of meningococcal meningitis is 5-15%. The disease manifests most commonly as meningitis and/or meningococemia that may progress rapidly to purpura fulminant, shock, and death. The disease is characterized by sudden onset with fever, intense headache, nausea and often vomiting, and stiff neck. Up to 15% of populations may carry *N. meningitidis* in the nasopharynx without developing invasive disease, while a few develop bacteremia, sepsis, meningitis, or pneumonia. The incubation period ranges from two to 10 days, usually three to four days. Transmission of *N. meningitidis* is from person to person by direct contact with respiratory droplets from the nose and throat of infected people. A vaccine is available for use in outbreaks if A, C, Y or W-135 serogroups are implicated. There is no vaccine for serogroup B, historically responsible for 20-30% of reported cases in Kansas. Chemoprophylaxis is used for close contacts of cases (e.g., household members, intimate contacts, health care personnel performing mouth-to-mouth resuscitation, day care center play-mates). No chemoprophylaxis is recommended for less intimate contacts (e.g., school mates, health care workers with minimal contact, and etc.) except during an outbreak or in a child care center.

Laboratory Criteria for Surveillance Purposes

- Isolation of *Neisseria meningitidis* from a normally sterile site (e.g., blood or cerebrospinal fluid [CSF] or, joint, pleural, or pericardial fluid). (Note: a positive antigen test is not sufficient to confirm a case for surveillance purposes.)

Surveillance Case Definitions

- *Confirmed*: a clinically compatible case that is laboratory confirmed.
- *Probable*: a case with a positive antigen test in CSF or clinical purpura fulminant in the absence of a positive blood culture.

Comment

- **Report suspect cases by telephone immediately.**
- KAR 28-1-18 requires that isolates be sent to the Kansas Health and Environmental Laboratory.
- Positive antigen test results from urine or serum samples are unreliable for diagnosing meningococcal disease.

Note: Advisory Committee on Immunization Practices has modified its guidelines for use of the meningococcal vaccine, particularly for college freshman who live in dormitories. This group has been found to be at increased risk relative to other persons their age. The recommendation is that those who provide medical care for this group give information to students and their parents about meningococcal disease and the benefits of vaccine. Vaccine should be made easily available to those who wish to reduce their risk of meningococcal disease.

Epidemiology and Trends

2001 Case Total	15
Kansas rate	0.6 per 100,000
U.S. rate (2000)	0.8 per 100,000

Cases by gender

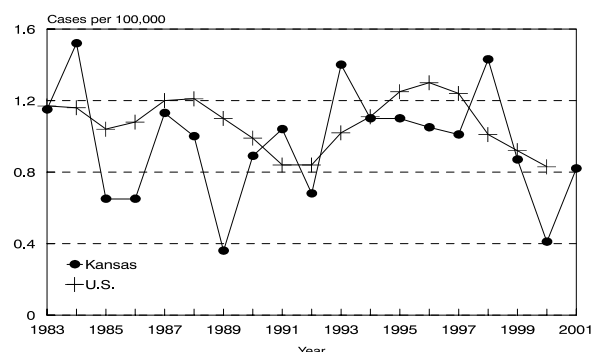
Female	4
Male	11

Cases by geographic area

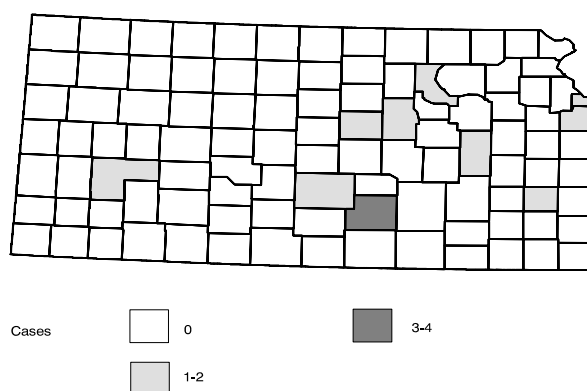
Urban	7
Rural	8

Fifteen meningococcal meningitis were reported during 2001, a increase from 11 cases reported in 2000. These were sporadic cases; no outbreaks were detected. The three-year median for 1998-2000 was 23 cases. The cases ranged in age from less than 1 to 77 years of age. The median age was 18 years. The ratio of reported cases from urban areas to rural areas was about 1:1. Eleven cases (73%) were male. There was one reported case in a college student. All isolates were sent to DHEL and serotyped as follows: B (9), Y (5), and untypeable (1).

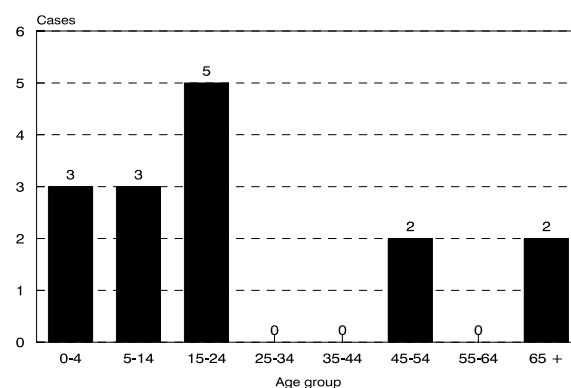
Meningococcal disease incidence rate by year
Kansas, 1983-2001



Meningococcal cases by county
Kansas, 2001



Meningococcal disease cases by age group
Kansas, 2001



MUMPS

Mumps is an acute viral disease caused by a paramyxovirus. It is characterized by fever, swelling and tenderness of one or more salivary glands, usually the parotid and sometimes the sublingual or submaxillary glands. Orchitis may occur in males and oophoritis in females. Winter and spring are the usual times of increased occurrence. The incubation period is 12 to 25 days, commonly 18 days. Mumps is transmitted by droplet spread and by direct contact with the saliva of an infected person.

Vaccine is available either as a single vaccine or in combination with rubella and measles live-virus vaccines (MMR). The vaccine has been available since 1971. The current recommendation is a routine two-dose MMR vaccine schedule, with the initial dose administered at 12-15 months of age. The second dose should be given at school entry (4-6 years of age).

Clinical Criteria

An illness with acute onset of unilateral or bilateral tender, self-limited swelling of the parotid or other salivary gland, lasting \geq 2 days, and without other apparent cause.

Laboratory Criteria for Surveillance Purposes

- Isolation of mumps virus from clinical specimen, **or**
- Significant rise between acute- and convalescent-phase titers in serum mumps immunoglobulin G antibody level by any standard serologic assay, **or**
- Positive serologic test for mumps immunoglobulin M (IgM) antibody.

Surveillance Case Definitions

- *Confirmed*: a case that is laboratory confirmed or that meets the clinical case definition and is epidemiologically linked to a confirmed or probable case. A laboratory confirmed case does not need to meet the clinical case definition.
- *Probable*: a case that meets the clinical case definition, has noncontributory or no serologic or virologic testing, and is not epidemiologically linked to a confirmed or probable case.

Comment

- **Report suspect cases by telephone immediately.**
- All suspected, probable, and confirmed cases of mumps are reportable and reviewed by the KDHE Immunization Program staff for appropriate control measures.

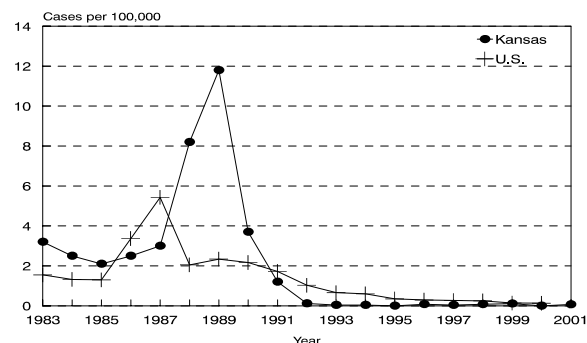
Epidemiology and Trends

2001 Case Total	2
Kansas rate	0.1 per 100,000
U.S. rate (2000)	0.1 per 100,000

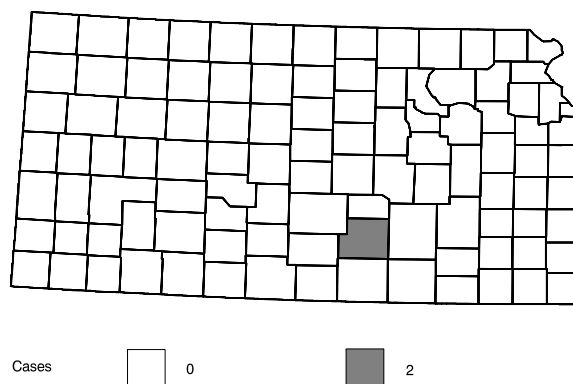
In 2001, two mumps cases were reported in Kansas. They were unrelated sporadic cases. None had documentation of mumps vaccination. There were significant outbreaks of mumps in Kansas in 1988 and 1989 among under-immunized people. Since 1992, there have been 0-2 cases reported annually in the state.

The national mumps immunization goal for the year 2010 is to achieve a 90% coverage rate among two-year-old children for the complete series of mumps vaccinations. Estimated Kansas immunization coverage rate of the National Immunization Survey for the first dose of the measles, mumps, and rubella vaccine (MMR1) was 86.0 (\pm 5.1%) in 1999.

Mumps incidence rate by year
Kansas, 1983-2001



Mumps cases by county
Kansas, 2001



PERTUSSIS (WHOOPIING COUGH)

Pertussis is a bacterial disease involving the respiratory tract caused by the bacillus *Bordetella pertussis*. Cough is the characteristic symptom, and it can become paroxysmal within one to two weeks. The cough is often followed by a characteristic inspiratory whoop and may be accompanied by post-tussive or vomiting. Although pertussis affects all age groups, it is particularly severe and more commonly recognized and diagnosed in infants and young children. The disease can be fatal in young children. The disease is usually less severe among older children and adults. Fever is usually minimal throughout the course. Infants may present with apnea or cyanosis, while adults may present only with a chronic spasmodic cough. The incubation period is commonly 5 - 10 days, up to 21 days. Transmission is by contact with respiratory secretions of infected persons. Active immunization with five doses of DTaP (diphtheria and tetanus toxoid and acellular pertussis) vaccine at 2, 4, and 6 months, at 12-15 months and at school entry (4-6 years of age) can prevent this disease among young children. The efficacy of the vaccine in children who have received at least 3 doses is estimated to be 80%. Immunity begins to wane 3 years after last vaccination. In recent years, pertussis has been increasingly recognized among adolescents and young adults. No pertussis vaccine is licensed for use in people over seven years old.

Clinical Criteria

A cough illness lasting \geq 2 weeks with one of the following: paroxysms of coughing, inspiratory “whoop,” or post-tussive vomiting, without other apparent cause.

Laboratory Criteria for Surveillance Purposes

- Isolation of *Bordetella pertussis* from clinical specimen ***or***
- Positive polymerase chain reaction for *B. pertussis*.

Surveillance Case Definitions

- ***Confirmed:*** a case that is laboratory confirmed or one that meets the clinical case definition and is epidemiologically linked to a laboratory-confirmed case.
- ***Probable:*** a case that meets the clinical case definition, is not laboratory confirmed, and is not epidemiologically linked to a laboratory-confirmed case.

Comment

- **Report suspect cases by telephone immediately.**
- All suspected cases of pertussis are reportable and reviewed by the KDHE Immunization Program staff for appropriate control measures.

Epidemiology and Trends

2001 Case Total	11
Kansas rate	0.4 per 100,000
U.S. rate (2000)	2.9 per 100,000

Cases by gender

Female	7
Male	4

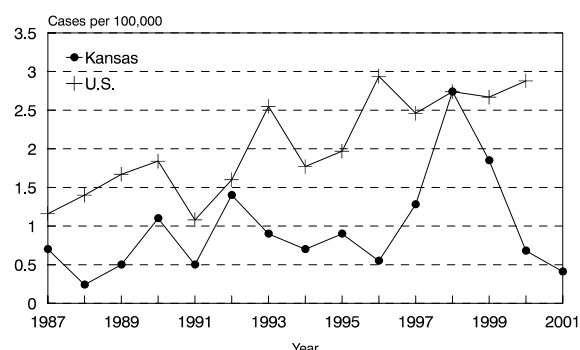
Cases by geographic area

Urban	10
Rural	1

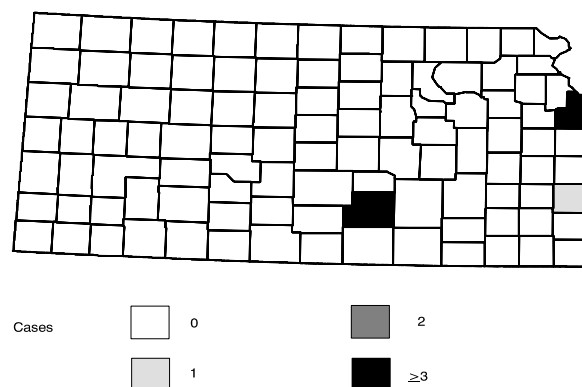
In 2001, a total of 11 cases of pertussis were reported, a decreased of 39% from the previous year of 18 cases. The three-year median for 1998-2000 was 49 cases. The cases ranged in age from infants less than 1 year to 38 years of age. The rate among children less than 5 years of age was 4.2 cases per 100,000 population and accounted for 73% of total pertussis morbidity. The ratio of female (7) to male (4) was about 2:1. The majority of the cases were Whites (73%) and were reported from urban areas (91%). All reported cases were apparently sporadic. No outbreaks were reported.

The national pertussis immunization goal for the year 2010 is to achieve a 90% coverage rate among two-year-old children for the complete series of vaccinations. Estimated Kansas immunization coverage rate of the National Immunization Survey for the fourth dose of the diphtheria, tetanus, and pertussis vaccine (DTaP4) was 79.4% (\pm 6.2%) in 2000.

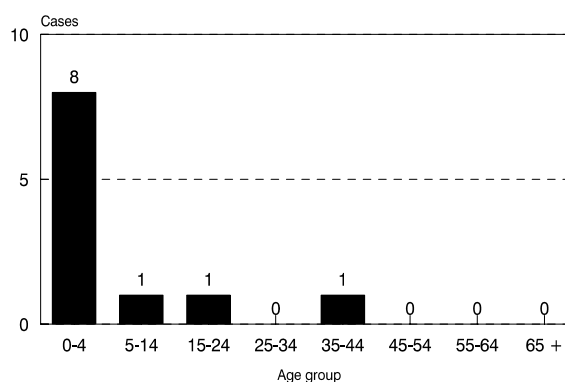
Pertussis incidence rate by year
Kansas, 1987-2001



Pertussis cases by county
Kansas, 2001



Pertussis cases by age group
Kansas, 2001



RABIES, ANIMAL

Rabies is a viral infection caused by a rhabdovirus of the genus *Lyssavirus*. The disease affects the nervous system of mammals. Symptoms may include behavior changes, like unusual aggressiveness or paralysis. Up-to-date vaccinations in dogs, cats, ferrets and livestock prior to exposure can protect these animals against the disease. The incubation period ranges from two weeks to many months. Rabies is considered fatal once symptoms occur. It is nearly always transmitted by saliva from an infected animal's bite. A dog, cat, or ferret inflicting a bite can be observed daily for 10 days following a bite to rule out the risk of rabies transmission. If the animal develops signs of rabies or dies during the period, or belongs to a wildlife or exotic species, it must be euthanized humanely and arrangements must be made for rabies examination. Bats, raccoons, foxes, skunks, and other carnivorous wildlife are presumed rabid until confirmed negative by laboratory diagnosis. Rodents, rabbits, hares, and opossums rarely transmit rabies, but any animal exhibiting unusual behavior should be suspected of carrying rabies.

Animal heads for rabies examination should be wrapped in several layers of plastic bags, placed in a leak-proof container with frozen gel packs, sealed, placed into a shipping box with a submission form, and sent to:

*Veterinary Diagnostic Laboratory/Rabies Laboratory
College of Veterinary Medicine
Kansas State University - V.C.S. Building
1800 North Denison Avenue
Manhattan, KS 66506-5601*

Contact the KSU rabies lab (785-532-4483) or KDHE (785-296-2951) for additional information on submitting specimens, or to answer other questions on rabies.

Laboratory Criteria for Surveillance Purposes

- A positive direct fluorescent antibody test (preferably performed on central nervous system tissue), ***or***
- Isolation of rabies virus (in cell culture or in a laboratory animal).

Surveillance Case Definitions

- *Confirmed*: a case that is laboratory confirmed.

Comment

- **Report suspect cases by telephone immediately.**

- More detailed information on rabies in Kansas can be found at:
www.vet.ksu.edu/depts/rabies/kansas.htm.

Epidemiology and Trends

<i>2001 Case Total</i>	100
<i>Number of counties reporting rabid animals</i>	41 (39%)

Types of rabid animals

Wild	76 (76%)
Domestic	
Pets	13 (13%)
Live stock	11 (11%)

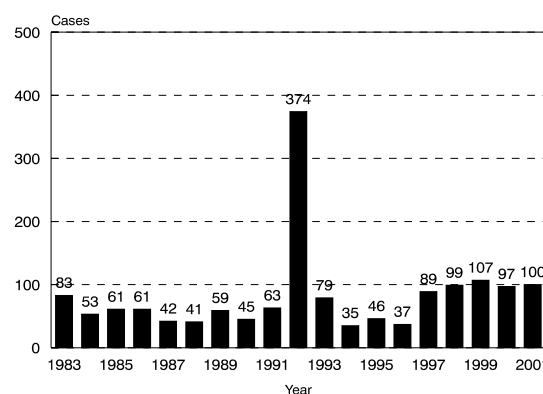
In Kansas, 100 laboratory confirmed cases of rabies in animals were reported during 2001, a 1% increase from 2000 (99). The three-year median for 1998-2000 was 99 cases. Forty-one counties reported at least one rabid animal in 2001. Wildlife species accounted for 76 (76%) of diagnosed cases; 69 skunks accounted for 91% of the wildlife species and 69% of the total. Other wildlife species included bats (5) and foxes (2). Twenty-four rabies cases were among domestic animals with cats (11) being the predominant domestic animal.

Rabies was not found in the following animals tested in Kansas during the past 11 years (1991-2001):

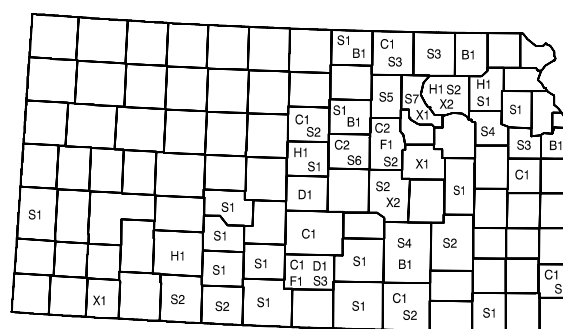
Antelope, Baboon, Badger, Beaver, Bison, Chipmunk, Coati, Cougar, Deer, Ferret, Ground Squirrel, Gerbil, Goat, Gopher, Groundhog, Guinea Pig, Hamster, Hedgehog, Human, Lion, Llama, Mink, Mole, Mouse,

Muskrat, Pig, Porcine, Porcupine, Prairie Dog, Primate, Pronghorn, Rabbit, Rat, Ringtail, Rodent, Squirrel, Tiger, Weasel, Wolf, Woodchuck, other rodents/ lagomorphs.

Animal rabies by year
Kansas, 1983-2001



Animal rabies by species and county
Kansas, 2001



B=bat C=cat D=dog F=fox H=horse S=skunk X=cow

Rabid animals by species
Kansas, 2001

Species	Number Tested	Number Positive	Percent Positive
Bat	123	5	4.1
Cat	697	11	1.6
Cow	59	7	11.9
Dog	509	2	0.4
Fox	5	2	40.0
Horse	24	4	16.7
Skunk	135	69	51

ROCKY MOUNTAIN SPOTTED FEVER

Rocky Mountain Spotted Fever (RMSF) is a disease caused by a rickettsial organism, *Rickettsia rickettsii*. It is most commonly characterized by acute onset of moderate to high fever, and is usually accompanied by myalgia, headache, and petechial rash (on the palms and soles in two thirds of the cases). Symptoms usually appear from 3 to 14 days from the bite of an infected tick and fatalities can occur. One attack probably provides permanent immunity. RMSF is spread by the bite of an infected tick (including *Dermacentor variabilis*, the American dog tick, and *Amblyomma americanum*, the Lone star tick), or by contamination of the skin with tick blood or feces. Person-to-person or animal to human spread of RMSF does not occur. The tick must feed for 10-24 hours before the organism can be transmitted.

Laboratory Criteria for Surveillance Purposes

- Fourfold or greater rise in antibody titer to *Rickettsia rickettsii* antigen by immunofluorescence antibody (IFA), complement fixation (CF), latex agglutination (LA), microagglutination (MA), or indirect hemagglutination antibody (IHA) test in acute- and convalescent-phase specimens ideally taken 3 weeks apart, **or**
- Positive polymerase chain reaction assay to *R. rickettsii*, **or**
- Demonstration of positive immunofluorescence of skin lesion (biopsy) or organ tissue (autopsy), **or**
- Isolation of *R. rickettsii* from clinical specimen.

Surveillance Case Definitions

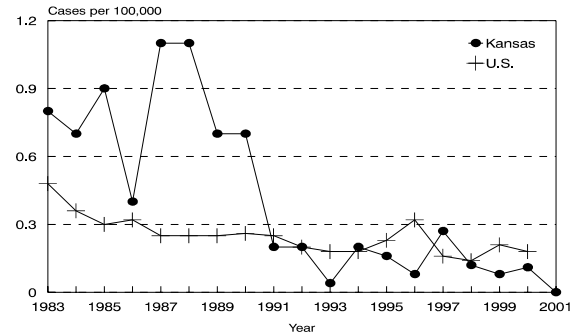
- *Confirmed*: a clinically compatible case that is laboratory confirmed.
- *Probable*: a clinically compatible case with a single IFA serologic titer of \$64 or a single CF titer of \$16 or other supportive serology (fourfold rise in titer or a single titer \$320 by Proteus OX-19 or OX-2, or a single titer \$128 by an LA, IHA, or MA test).

Epidemiology and Trends

2001 Case Total 0
 U.S. rate (2000) 0.2 per 100,000

In 2001, there were no cases of RMSF reported. For the ten year period 1991-2000, 1 to 18 cases have been reported annually. The precipitous drop in cases after 1990 may be explained by increased investigation and verification of reported cases resulting in fewer cases meeting the surveillance case definition.

Rocky Mountain Spotted Fever incidence rate
 by year - Kansas, 1983-2001



RUBELLA (“German Measles”)

Rubella is a mild febrile viral disease caused by *Rubivirus* species. The symptoms are a fever and rash along with enlarged lymph nodes in the head and neck. While the illness is only rarely serious in children or adults, it can produce congenital anomalies or intrauterine death in women infected during pregnancy. Congenital rubella syndrome (CRS) occurs in up to 90% of infants born to women who acquired confirmed rubella during the first trimester of pregnancy. The incubation period is 16 to 18 days, and transmission is from respiratory or direct contact with infected persons. Rubella can be prevented by vaccination. The current recommendation is a routine two-dose MMR vaccine schedule, with the initial dose administered at 12-15 months of age. The second dose should be given at school entry (4-6 years of age). Vaccine should not be given to anyone who is immunosuppressed, or to pregnant women.

Clinical Criteria

An illness that has **all** the following characteristics: acute onset of generalized maculopapular rash; temperature $>99.0^{\circ}\text{F}$ ($>37.2^{\circ}\text{C}$), if measured; arthralgia/arthritis, lymphadenopathy, or conjunctivitis

Laboratory Criteria for Surveillance Purposes

- Isolation of rubella virus, *or*
- Significant rise between acute-and convalescent-phase titers in serum rubella immunoglobulin G antibody level by any standard serologic assay, *or*
- Positive serologic test for rubella immunoglobulin M (IgM) antibody

Surveillance Case Definitions

- *Confirmed*: a case that is laboratory confirmed or that meets the clinical description and is epidemiologically linked to a laboratory-confirmed case
- *Probable*: a case that meets the clinical description, has no or noncontributory serologic or virologic testing, and is not epidemiologically linked to a laboratory-confirmed case
- *Suspected*: any generalized rash illness of acute onset

Comment

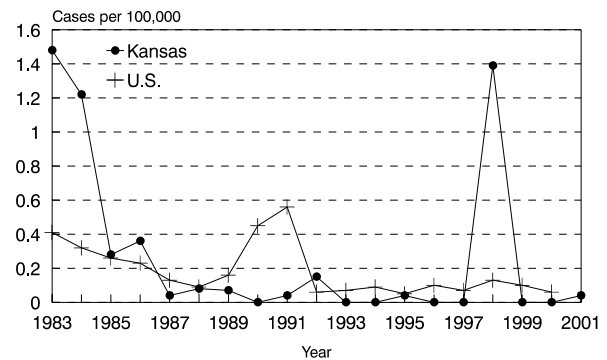
- **Report suspect cases by telephone immediately.**
- All suspected, probable, and confirmed cases of rubella are reportable and reviewed by the KDHE Immunization Program staff for appropriate control measures.

<i>2001 Case Total</i>	1
Kansas rate	<0.1 per 100,000
U.S. rate (2000)	0.2 per 100,000

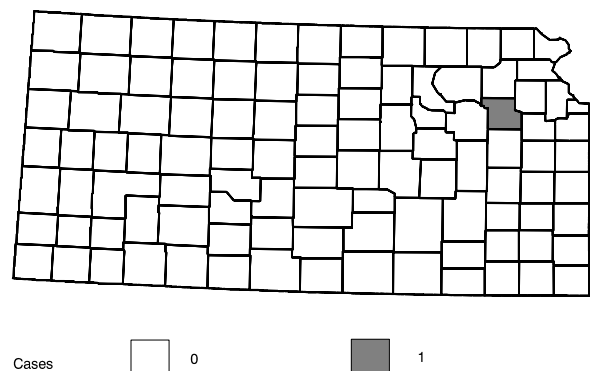
In 2001, one case of rubella was reported in Kansas. The three-year median for 1998-2000 was 0 case. No cases of rubella were reported in Kansas between 1998-2000. There was an outbreak of rubella in 1998 primarily affecting employees of meat-packing plants with no record of any rubella vaccination.

The national rubella immunization goal for the year 2010 is to achieve a 90% coverage rate among two-year-old children for the complete series of vaccinations. Estimated Kansas immunization coverage rate of the National Immunization Survey for the first dose of the measles, mumps, and rubella vaccine (MMR1) was 86.0% ($\pm 5.1\%$) in 1999.

Rubella incidence rate by year Kansas, 1983-2001



Rubella cases by county
Kansas, 2001



SALMONELLOSIS (non-typhoidal)

Salmonellosis is an enteric bacterial disease caused by numerous serotypes of *Salmonella*, which can be pathogenic for both animals and people. The symptoms include fever, headache, diarrhea, abdominal pain, nausea, and sometimes vomiting. Young children, people with special health conditions, and the elderly are more likely to experience severe symptoms with complications. The bacteria can cause severe dehydration and may become invasive. Asymptomatic infections can occur. The incubation period ranges from 6 to 72 hours, usually 12-36 hours. The disease is transmitted by ingestion, usually by eating or drinking raw or undercooked eggs, raw milk, contaminated water, meat, or poultry products. In addition, pet reptiles, chicks, and other animals can be sources of these bacteria.

Laboratory Criteria for Surveillance Purposes

- Isolation of *Salmonella spp.* from a clinical specimen.

Surveillance Case Definitions

- *Confirmed*: a case that is laboratory confirmed.
- *Probable*: a clinically compatible case that is epidemiologically linked to a confirmed case.

Comment

- K.A.R. 28-1-18 requires that isolates be sent to Kansas Department of Health and Environmental Laboratory.

Epidemiology and Trends

<i>2001 Case Total</i>	314
Kansas rate	11.7 per 100,000
U.S. rate (2000)	14.5 per 100,000

Rate by gender

Female	12.5 per 100,000
Male	10.6 per 100,000

Race

White	8.5 per 100,000
African-American	3.9 per 100,000
Asian/Pacific Islander	10.4 per 100,000

Rate by ethnicity

Hispanic	10.6 per 100,000
Non-Hispanic	6.9 per 100,000

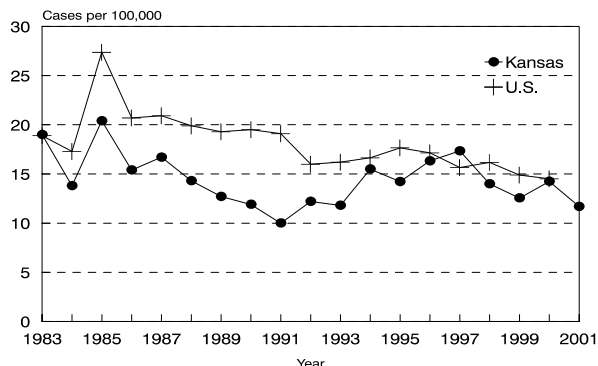
Rate by geographic area

Urban	10.1 per 100,000
Rural	13.2 per 100,000

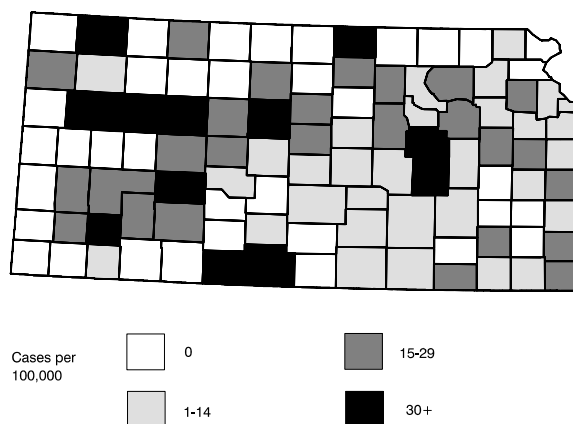
In 2001, the 314 cases of salmonellosis reported in Kansas represents a 17% decrease from the 378 cases reported in 2000. The three-year median for 1998-2000 was 363 cases. The cases ranged in age from less than 1 to 91 years of age (median age: 30). Salmonellosis occurred in all age groups. However, the highest incidence rate occurred in those less than 5 years (47.2 per 100,000), comprising 28% of the reported cases.

The ratio of female to male cases was about one to one. Sixty-two percent of the cases were in Whites, 2% in African-Americans, <1% in Asian/Pacific Islanders, and in 34% of cases race was not reported. Hispanic ethnicity accounted for 6% of the cases, although ethnicity was not reported in 39% of cases. The largest number of cases occurred

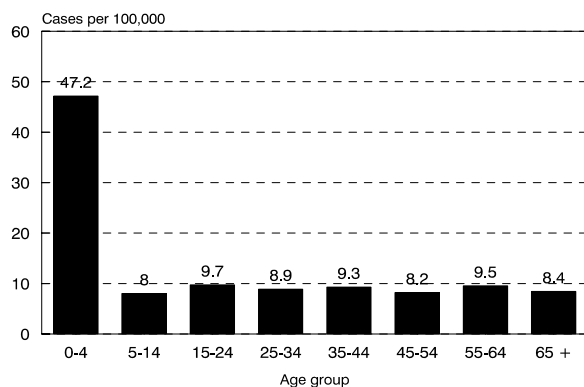
Salmonellosis incidence rate by year
Kansas, 1983-2001



Salmonellosis rate by county
Kansas, 2001



Salmonellosis rate by age group
Kansas, 2001



in Johnson, Sedgwick, and Shawnee counties which accounted for 36% of the cases. Most of reported cases were apparently sporadic. One outbreak was detected in Shawnee County with 4 cases of *S. Norwich*; no common vehicle was identified.

The serotype was available for 77% (243) of the salmonellosis cases reported. The eight most frequently isolated serotypes were: *S. newport* (53), *S. typhimurium* (42), *S. enteritidis* (24), *S. var. Copenhagen** (21), *S. heidelberg* (16), *S. Montevideo* (10), *S. Oranienburg* (9), and *S. Group B* (9).

**S. Copenhagen* is a variant of *S. typhimurium*.

SHIGELLOSIS

Shigellosis is a bacterial infection affecting the intestinal tract caused by *Shigella* species. *S. dysenteriae*, *S. flexneri*, *S. boydii*, and *S. sonnei* account for most of the cases. Only humans carry *Shigella* bacteria. Symptoms usually include diarrhea which is often bloody, accompanied by fever, nausea, abdominal cramps, and tenesmus. Asymptomatic infections may occur. Illness is often self-limiting lasting four to seven days, occasionally up to weeks or months. The incubation period ranges from 12 to 96 hours, but may be as long as one week. Transmission is by the fecal-oral route and very few organisms are needed for infection. The usual mode of transmission is from hands contaminated with human fecal material that are not adequately washed after toileting and subsequently transfer the bacteria to food or water. Direct person-to-person transmission is very common. Flies may transmit the disease by carrying the bacteria on their legs to food.

Laboratory Criteria for Surveillance Purposes

- Isolation of *Shigella* spp. from a clinical specimen.

Surveillance Case Definitions

- *Confirmed*: a case that is laboratory confirmed.
- *Probable*: a clinically compatible case that is epidemiologically linked to a confirmed case.

Comment

- K.A.R. 28-1-18 requires that isolates be sent to the Kansas Health and Environmental Laboratory.

Epidemiology and Trends

2001 Case Total	76
Kansas rate	2.8 per 100,000
U.S. rate (2000)	8.4 per 100,000

Rate by gender

Female	2.7 per 100,000
Male	2.9 per 100,000

Rate by race

White	1.6 per 100,000
African-American	14.3 per 100,000
Asian/Pacific Islander	2.1 per 100,000

Rate by ethnicity

Hispanic	9.0 per 100,000
Non-Hispanic	1.4 per 100,000

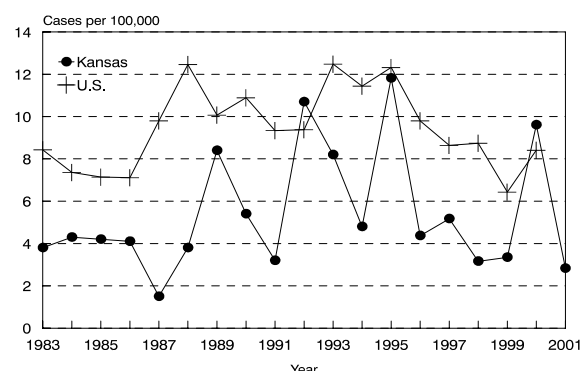
Rate by geographic area

Urban	4.6 per 100,000
Rural	1.1 per 100,000

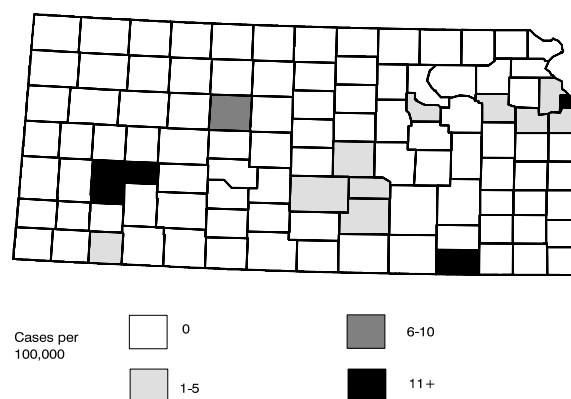
In 2001, there were 76 cases of shigellosis reported in Kansas. This is a 70% decrease compared to 255 cases reported in 2000. No outbreak was reported. The three-year median for 1998-2000 was 89 cases. Cases ranged in age from less than 1 to 66 years; median age was 5 years. Children less than 5 years comprised 50% of the cases and with the highest age-specific incidence rate, 20.1 case per 100,000 population. The ratio of female to male was about one to one. The majority of cases (80%) were reported from urban areas, with Wyandotte county (35) accounting for 46% of the total cases reported, seven as part of a community wide outbreak since 2000.

The species was identified for 59% of the cases. Of the 45 cases for whom this information was known, 82% were *S. sonnei*, and 18% *S. flexneri*.

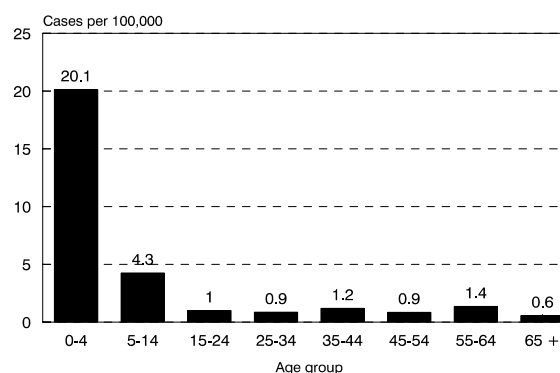
Shigellosis incidence rate by year
Kansas, 1983-2001



Shigellosis rate by county
Kansas, 2001



Shigellosis rate by age group
Kansas, 2001



STREPTOCOCCAL INVASIVE DISEASE:

Group A *Streptococcus* or *Streptococcus pneumoniae*

Streptococcal invasive disease causes many clinical syndromes, depending on the site of infection (e.g., acute otitis media, pneumonia, bacteremia, or meningitis). “Invasive” refers to Group A *Streptococcus* or *S. pneumoniae* infections involving normally sterile sites (such as blood, cerebrospinal fluid, joint, pleural, or pericardial fluid). Streptococcal invasive disease is characterized typically by sudden onset with a shaking chill, fever, pleural pain, dyspnea, tachypnea, and leukocytosis. The onset may be less abrupt, especially in the elderly. In infants and young children, fever, vomiting and convulsions may be the initial manifestations. Symptoms vary depending on the site and route of infection. The incubation period is not well determined; it may be as short as 14 hours to 3 days. Mode of transmission is by droplet spread, by direct oral contact, or indirectly through articles freshly soiled with respiratory discharges. Person-to-person transmission of the organisms is common, but illness in invasive disease among close and casual contacts, and attendants is infrequent.

Laboratory Criteria for Surveillance Purposes

- Isolation of Group A *Streptococcus* (*Streptococcus pyogenes*) or *Streptococcus pneumoniae* from a normally sterile site (e.g., blood, cerebrospinal fluid, joint, pleural, or pericardial fluid)

Surveillance Case Definitions

- *Confirmed*: a clinically compatible case that is laboratory confirmed.

Comment

- K.A.R. 28-1-18 requires that isolates be sent to the Kansas Health and Environmental Laboratory.
- Previously, only drug resistant strains were reportable.

Epidemiology and Trends

2001 Case Total	98
Kansas rate	3.7 per 100,000
U.S. rate (2000)	N/A

Cases by gender

Female	3.8 per 100,000
Male	3.4 per 100,000

Rate by race

White	1.9 per 100,000
African-American	3.2 per 100,000
Asian/Pacific Islander	4.2 per 100,000

Rate by ethnicity

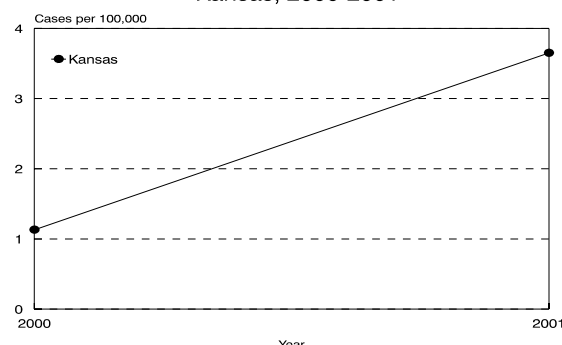
Hispanic	1.6 per 100,000
Non-Hispanic	1.6 per 100,000

Rate by geographic area

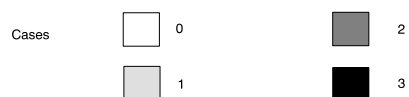
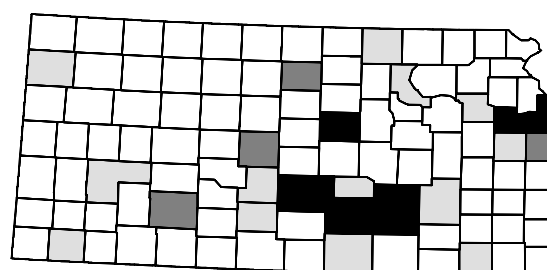
Urban	4.5 per 100,000
Rural	2.8 per 100,000

There were a total of 98 cases of streptococcal invasive disease: 51 Group A. *Streptococcus* and 47 *Streptococcus pneumoniae* respectively. This is a significant (227%) increase compared to 30 cases reported in 2000. The increase may be due to more awareness and improvement in reporting of cases. The cases ranged in age from less than 1 to 99 years; median age was 55 years. The ratio of female to male was about 1:1. The majority of the cases were reported from urban areas (77%).

Streptococcal invasive disease
incidence rate by year
Kansas, 2000-2001

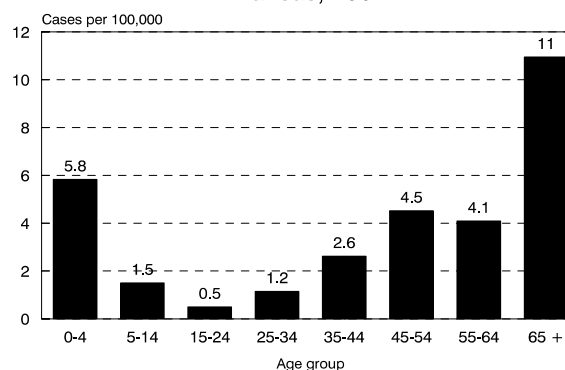


Streptococcal invasive disease
cases by county
Kansas, 2001



Streptococcal/invasive disease rate by age group

Kansas, 2001



SYPHILIS

Syphilis is a complex sexually transmitted disease caused by the spirochete *Treponema pallidum*. The infection usually progresses through four stages:

- *Primary Syphilis*: the most infectious stage, characterized by one or more chancres (ulcers) that appear 10 to 90 days after exposure. The chancre appears at the site of exposure and heals within one to four weeks, even without treatment.
- *Secondary Syphilis*: a stage of infection characterized by localized or diffuse mucocutaneous lesions, often with generalized lymphadenopathy. The primary chancre may still be present. The skin eruptions can appear as a variety of different rashes and may begin while the chancre is present. However, it usually starts four weeks after the chancre resolves and can occur up to six months after inoculation. The rash resolves in two to six weeks, but may recur with infectious lesions for the first year of the disease. The most common secondary rash is a maculopapular rash of the palms and soles.
- *Early Latent Syphilis*: occurs when the primary and secondary symptoms resolve and lasts throughout the first year of infection. This stage represents the asymptomatic stage of the infection, however, all serologic tests for syphilis will be positive.
- *Late Syphilis*: characterized by manifestations that occur 5 to 20 years after infection. They include gummas (a lump with gummy contents); destructive lesions of the skin, viscera, bone and mucosa surfaces; cardiovascular syphilis, destructive lesions of the aorta; and neurosyphilis, destruction of areas of the central nervous system including the brain. Late syphilis can cause death or permanent disability.

Fetal infection often occurs in pregnant women with untreated primary, secondary or early latent syphilis. It can also occur, with less frequency, in women who have untreated late latent syphilis. This infection may cause stillbirth, infant death, or severe complications that do not manifest and become apparent until much later in life. Syphilis is transmitted by direct contact with infectious exudates from lesions of the skin and mucous membranes, body fluids and secretions (saliva, semen, blood, vaginal discharges) of infected people during sexual contact. Transmission can occur through blood transfusion if the donor is in the early stages of the disease but is very rare. Fetal infection usually occurs through placental transfer or at delivery.

Laboratory Criteria for Surveillance Purposes

- Demonstration of *T. pallidum* in clinical specimens by darkfield microscopy, direct fluorescent antibody (DFA-TP), or equivalent methods, or by clinical manifestations of acquired infection.

Surveillance Case Definitions

- *Confirmed*: a clinically compatible case that is laboratory confirmed.

Comments

- More detailed information on STDs in Kansas is available at: www.kdhe.state.ks.us/hiv-std.

PRIMARY AND SECONDARY SYPHILIS

Epidemiology and Trends

2001 Case Total	26
Kansas rate	0.2 per 100,000
U.S. rate (2000)	2.2 per 100,000

Cases by gender

Female	1
Male	5

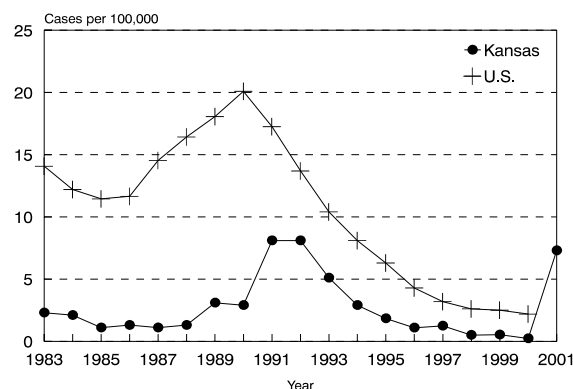
Cases by geographic area

Urban	5
Rural	1

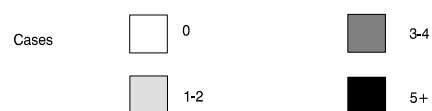
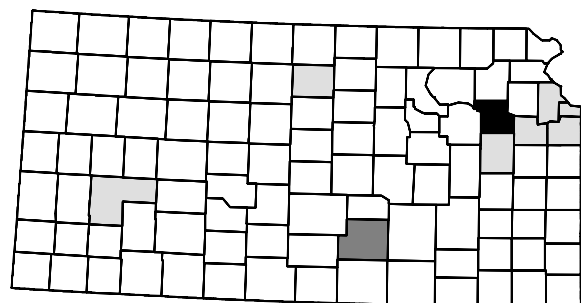
The cases ranged from 16 to 53 years of age. The median age was 30 years. The ratio of cases reported from Whites to African-American was about 1:1. Mirroring the trend for gonorrhea, 81% of the cases in the state were reported from the four metropolitan areas.

In 2001, the number of reported syphilis cases (26) increased 333% from 2000 (6), with an incidence rate of 7.3 per 100,000. This is well above the 1999 national rate of 2.5 cases per 100,000 population. The increase could be attributed to two outbreaks in Topeka and Wichita, as described in the introduction. The three-year median for 1998-2000 was 12 cases. While accounting for a small proportion of cases among the many reportable STDs in Kansas, syphilis remains important because of its potential for elimination as well as its role as risk factor for HIV infection and transmission.

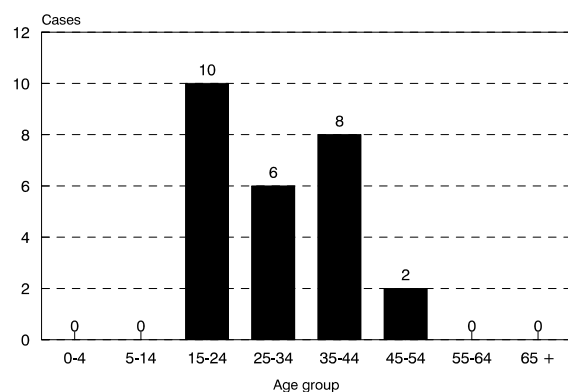
Primary and secondary syphilis incidence rate by year - Kansas, 1983-2001



Primary and secondary syphilis cases by county
Kansas, 2001



Primary and secondary syphilis cases
by age group - Kansas, 2001

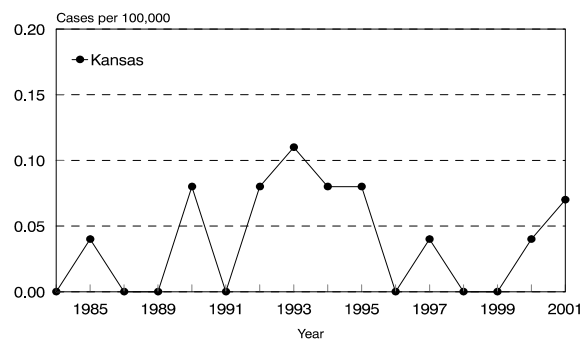


CONGENITAL SYPHILIS

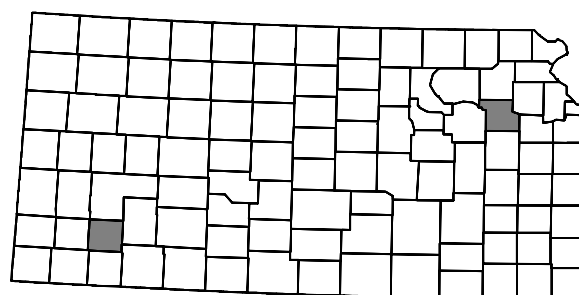
2001 Case Total	2
Kansas rate	0.1 per 100,000
U.S. rate (2000)	N/A

In 2000, there were two case of congenital syphilis reported in Kansas.

Congenital Syphilis incidence rate by year
Kansas, 1986-2001



Congenital syphilis cases by county
Kansas, 2001



TETANUS

Tetanus is an acute disease induced by an exotoxin of the tetanus bacillus, *Clostridium tetani*. It is characterized by an acute onset of hypertonia (extreme tension of the muscles), painful muscular contractions (usually of the muscles of the jaw and neck) and generalized muscle spasms without other apparent medical cause, following the contamination of a wound with *Clostridium tetani*. The incubation period is usually 3-21 days, with an average of 10 days. There is no direct transmission from person to person. A vaccine to prevent tetanus is available.

Tetanus toxoid is administered with diphtheria toxoid and acellular pertussis (DTaP) vaccine as a triple antigen for children <7 years of age. It is routinely administered at 2, 4, and 6 months, with booster doses at 15-18 months of age and school entry (4-6 years of age). Active protection should be maintained by administering booster doses of Td (tetanus diphtheria) every 10 years. Protection with vaccine is recommended for universal use regardless of age. It is especially important for workers in contact with soil, sewage, domestic animals; members of the military forces; policemen and others with greater than usual risk of traumatic injury; and adults ≥65 years who are currently at highest risk for tetanus and tetanus related mortality. Vaccine induced maternal immunity is important in preventing neonatal tetanus.

Laboratory Criteria for Surveillance Purposes

- Isolation of *Clostridium tetani*.

Surveillance Case Definitions

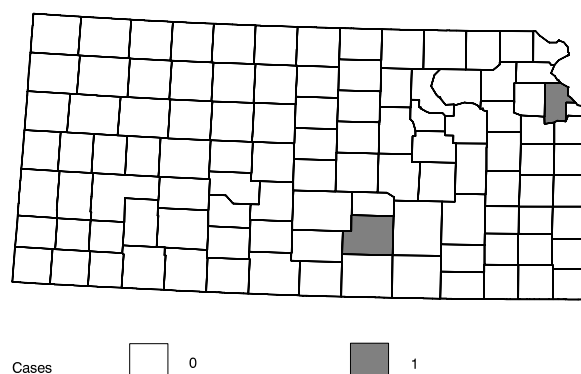
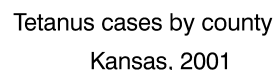
- *Confirmed*: a clinically compatible case **with or without** laboratory isolation of *Clostridium tetani*.

Comment

- All suspected cases of tetanus are reportable and reviewed by the KDHE Immunization Program staff for appropriate control measure.

In 2001, there were two tetanus cases reported. The cases had documentation of past tetanus vaccination, but were not up-to-date. Both were hospitalized, but no deaths were reported. A total of 7 cases of tetanus were reported in Kansas between 1991 and 2000 all among adults.

Tetanus incidence rate by year
Kansas, 1983-2001



TOXIC SHOCK SYNDROME, streptococcal and staphylococcal

Toxic-shock syndrome (TSS) is a severe illness associated with invasive or noninvasive group A streptococcal (*Streptococcus pyogenes*) or staphylococcal infections. The illness may occur with infection at any site but most often occurs in association with infection of a cutaneous lesion. Signs of toxicity and a rapidly progressive clinical course are characteristic, and the case-fatality rate may exceed 50%. TSS is characterized by sudden onset of high fever, vomiting, profuse watery diarrhea, myalgia and hypotension, and shock. A rash, which may result in desquamation of the skin, occurs in the first two weeks of illness. The incubation period is usually 1-3 days. Strains of TSS bacteria are rarely present in vaginal cultures from healthy women, but are regularly recovered from women with menstrually associated TSS or in those with TSS following gynecologic surgery. Although almost early cases of TSS occurred in women during menstruation, and most were associated with vaginal tampon use, only 55% of cases now reported are associated with menses.

Clinical Criteria

An illness with the following clinical manifestations:

- *Fever*: temperature ≥ 102.0 F (≥ 38.9 C).
- *Rash*: diffuse macular erythroderma.
- *Desquamation*: 1-2 weeks after onset of illness, particularly on the palms and soles.
- *Hypotension*: systolic blood pressure ≤ 90 mm Hg for adults or less than fifth percentile by age for children aged <16 years; orthostatic drop in diastolic blood pressure ≥ 15 mm Hg from lying to sitting, orthostatic syncope, or orthostatic dizziness.
- *Multisystem involvement* -- three or more of the following:
 - Gastrointestinal*: vomiting or diarrhea at onset of illness.
 - Muscular*: severe myalgia or creatine phosphokinase level at least twice the upper limit of normal for laboratory.
 - Renal*: blood urea nitrogen or creatine at least twice the upper limit for normal for laboratory or urinary sediment with pyuria (≥ 5 leukocytes per high-power field) in the absence of urinary tract infection.
 - Hepatic*: total bilirubin, serum glutamic-oxaloacetic transaminase (SGOT), or serum glutamic-pyruvic transaminase (SGPT) at least twice the upper limit of normal for laboratory.
 - Central Nervous System*: disorientation or alterations in consciousness without focal neurologic signs when fever and hypotension are absent.

Laboratory Criteria for Surveillance Purposes

Negative results on the following tests, if obtained:

- Blood, throat, or cerebrospinal fluid cultures (blood culture may be positive for *Staphylococcus aureus*).
- Rise in titer to Rocky Mountain Spotted Fever, leptospirosis, or measles.

Surveillance Case Definitions

- *Confirmed:* a case in which all of the clinical findings described above are present, including desquamation, unless the patient dies before desquamation occurs.
- *Probable:* a case in which clinical findings described above are present.

Epidemiology and Trends

2001 Case Total	4
Kansas rate	0.2 per 100,000
U.S. rate (2000)	0.1 per 100,000

Cases by gender

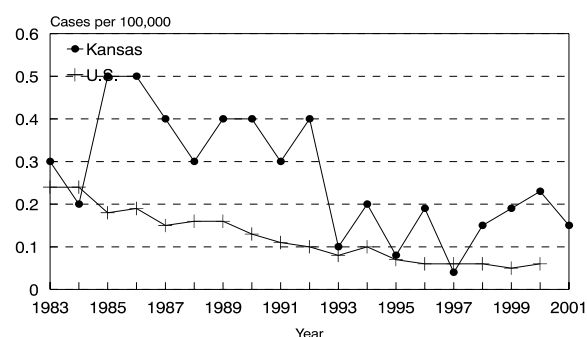
Female	2
Male	2

Cases by geographic area

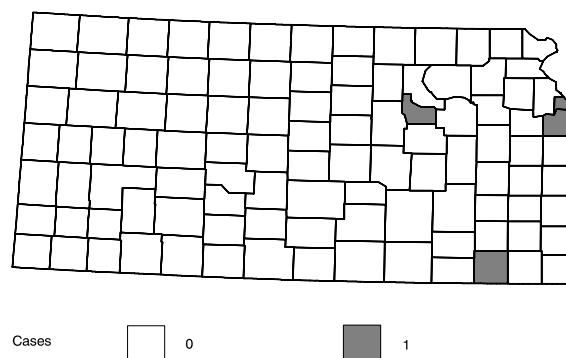
Urban	2
Rural	2

There were 4 cases of toxic shock syndrome reported in 2001. Two *streptococcus*, and two *staphylococcus aureus* were identified as the cause of illness. All were hospitalized, and one death was reported.

Toxic Shock Syndrome incidence rate by year
Kansas, 1983-2001



Toxic shock syndrome cases by county
Kansas, 2001



TUBERCULOSIS (TB)

Tuberculosis is a disease caused by a *Mycobacterium tuberculosis* complex that can be spread from person to person through the air. This complex includes *M. tuberculosis* and *M. africanum* primarily from humans, and *M. bovis* primarily from cattle. The most common site of disease is the lungs (pulmonary TB), but other organs (extrapulmonary TB) may be involved (e.g., brain, lymph nodes, kidneys, bones, joints, larynx, intestines, eyes). Tuberculosis is transmitted by exposure to tubercle bacilli through inhalation in airborne droplet nuclei from people with active pulmonary TB. Prolonged close contact with these cases may lead to infection. Systemic symptoms include low-grade fever, night sweats, fatigue, and weight loss. In pulmonary or laryngeal TB, there may also be hemoptysis (i.e., bloody sputum), a persistent and productive cough, chest pain, and shortness of breath. The incubation period is about 2-12 weeks from infection to demonstrable primary lesion or significant tuberculin reaction. Epidemics of tuberculosis have occurred among individuals in enclosed places, such as nursing homes, jails, hospitals, schools, office buildings, and factories. Tuberculosis is treatable with the use of medications. There are multi-drug resistant (i.e., resistant to both isoniazid and rifampin) forms of *M. tuberculosis*, fortunately rare in Kansas.

Clinical Criteria

A case that meets the following criteria:

- A positive tuberculin skin test.
- Other signs and symptoms compatible with tuberculosis (e.g., an abnormal, unstable [i.e., worsening or improving] chest radiographs, or clinical evidence of current disease).
- Treatment with two or more antituberculosis medications.
- Completed diagnostic evaluation.

Laboratory Criteria for Surveillance Purposes

- Isolation of *M. tuberculosis* from a clinical specimen **or**
- Demonstration of *M. tuberculosis* from a clinical specimen by nucleic acid amplification test, **or**
- Demonstration of acid-fast bacilli in a clinical specimen when a culture has not been or cannot be obtained.

Surveillance Case Definitions

- *Confirmed*: a case that meets the clinical case criteria or is laboratory confirmed.

Comment

- **Report suspect cases by telephone immediately.**
- K.A.R. 28-1-18 requires isolates be sent to the Kansas Health and Environmental Laboratory.

Epidemiology and Trends

<i>2001 Total Case</i>	80
Kansas rate	3.0 per 100,000
U.S. rate (2000)	6.0 per 100,000

Rate by gender

Female	2.5 per 100,000
Male	3.5 per 100,000

Rate by race

White	0.8 per 100,000
African-American	4.5 per 100,000
Asian/Pacific Islander	53.4 per 100,000
Native American	4.0 per 100,000

Rate by ethnicity

Hispanic	11.2 per 100,000
Non-Hispanic	2.4 per 100,000

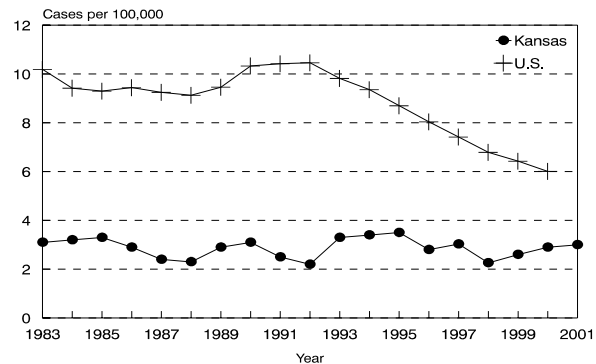
Rate by geographic area

Urban	4.1 per 100,000
Rural	1.8 per 100,000

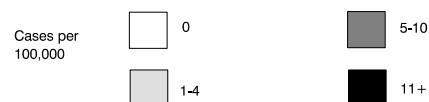
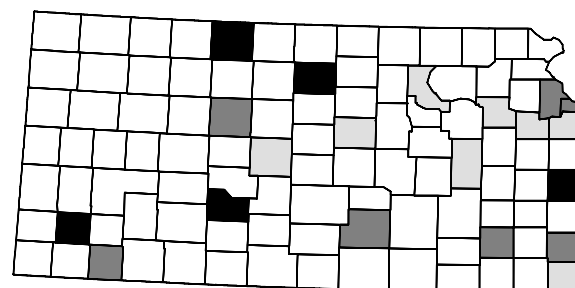
There were 80 reported cases of active TB disease in 2001, an increase of 3 cases from 77 cases in 2000. The three-year median for 1998-2000 was 69 cases. Cases ranged in age from <1 to 95 years of age; the median age was 39 years. Fifty-eight percent of cases (46) were males. TB cases in Kansas are not evenly distributed among the various racial and ethnic groups. The distribution was 25 Asian/Pacific Islanders (31%), 21 Hispanics (26%), 19 Whites (24%), and 7 African-Americans (9%). Members of Asian/Pacific Islander and Hispanic population were disproportionately affected by TB during 2001, 47 out of the 80 cases occurred among foreign-born individuals in Kansas.

Sedgwick County reported the highest number of new cases of TB disease in 2001, with 32

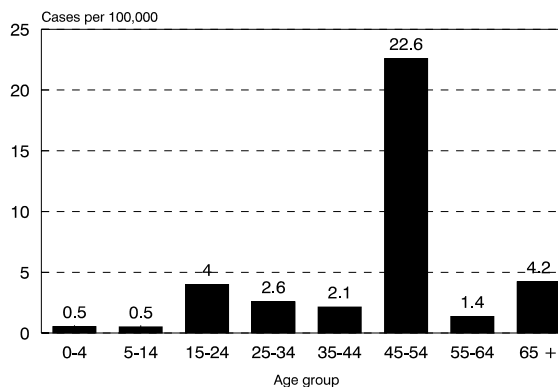
Tuberculosis incidence rate by year
Kansas, 1983-2001



Tuberculosis rate by county
Kansas, 2001



Tuberculosis rate by age group
Kansas, 2000



(7.1 cases per 100,000 population). Six cases were reported in Kansas among children under the age of 14, as compared with 5 cases in 2000. Nineteen cases were reported for the age group 15-24; 20 for the age group 25-44; 17 for the age group 45-64; and 18 among individuals over the age of 65.

There were 61 cases of pulmonary, 17 cases of extrapulmonary TB, and two cases combined pulmonary and extrapulmonary. There were two reported case of HIV co-infection and two cases of multi-drug resistant TB in 2001.

TULAREMIA

Tularemia is caused by the bacterium *Francisella tularensis*, with a variety of clinical presentations depending on route of exposure. Symptoms include lymphadenopathy, with or without cutaneous ulceration; pharyngitis, sepsis, intestinal signs, pneumonic disease, and a typhoidal illness without localizing signs. It is transmitted by arthropods, inoculation, when handling contaminated material, by drinking contaminated water, ingesting contaminated food, inhalation of the organism in contaminated dust, or by bites of contaminated animals. The incubation period ranges from 1-14 days, usually 3-5 days. Clinical diagnosis is supported by evidence or history of a tick or deerfly bite, exposure to tissues of a mammalian host of *Francisella tularensis*, or exposure to potentially contaminated water. People who spend a great deal of time outdoors are at greater risk of exposure to tularemia. In the U.S.A., tularemia occurs in all months of the year; incidence may be higher in adults in early winter during rabbit hunting season and in children during the summer when ticks and deer flies are abundant.

Laboratory Criteria for Surveillance Purposes

Confirmatory

- Isolation of *F. tularensis* from a clinical specimen, **or**
- Fourfold or greater change in serum antibody titer to *F. tularensis* antigen

Presumptive

- Elevated serum antibody titer(s) to *F. tularensis* antigen (without documented fourfold or greater change) in a patient with no history of tularemia vaccination **or**
- Detection of *F. tularensis* in a clinical specimen by fluorescent assay

Surveillance Case Definitions

- ***Confirmed:*** a clinically compatible illness that is laboratory confirmed

Probable: a clinically compatible case with laboratory results indicative of presumptive infection

Comment: Tularemia is not a nationally notifiable disease.

NOTE: This organism is a potential bioterrorist agent. Cases suspected of being linked to bioterrorist activities should be immediately reported to 1-877-427-7317.

Epidemiology and Trends

<i>2001 Case Total</i>	7
Kansas rate	0.3 per 100,000
U.S. rate (2000)	0.1 per 100,000

Cases by gender

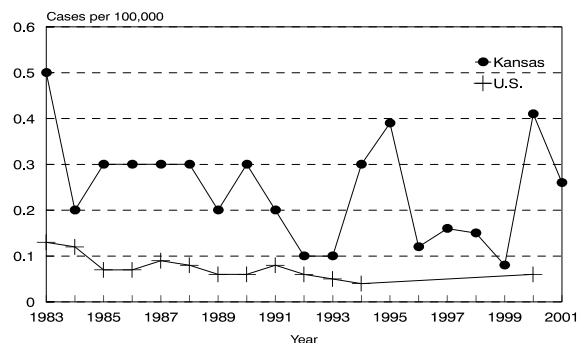
Female	1
Male	6

Cases by geographic area

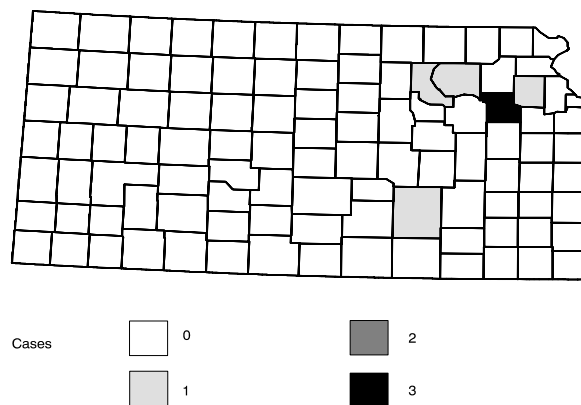
Urban	3
Rural	4

In 2001, there were 7 confirmed cases of tularemia reported, a decrease from the 11 cases reported in 2000. The three year median for 1998-2000 was 4 cases. Fifty-two cases of Tularemia were reported in Kansas for the ten year period 1991-2000; 3-11 cases were reported annually.

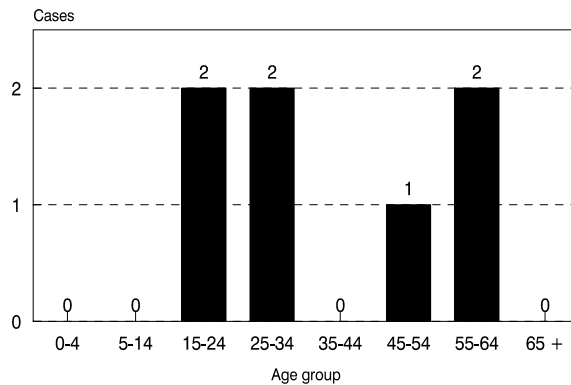
Tularemia incidence rate by year
Kansas, 1983-2001



Tularemia cases by county
Kansas, 2001



Tularemia Cases by age group
Kansas, 2001



TYPHOID FEVER

Typhoid fever is an illness caused by *Salmonella typhi* that is often characterized by insidious onset of sustained fever, headache, malaise, anorexia, relative bradycardia, constipation or diarrhea, and nonproductive cough. However, many mild and atypical infections occur. Carriage of *S. typhi* may be prolonged. The incubation period depends on the size of the infecting dose; from 3 days to 3 months with a usual range of 1-3 weeks; for paratyphoid gastroenteritis, 1-10 days. Transmission is through food and water contaminated by feces and urine of patients and carriers. A vaccine is available but is generally reserved for people traveling to underdeveloped countries where significant exposure may occur. Strict attention to food and water precautions while traveling to such countries is the most effective preventive method.

Laboratory Criteria for Confirmation

- Isolation of *S. typhi* from blood, stool, or other clinical specimen.

Surveillance Case Definitions

- *Confirmed*: a clinically compatible case that is laboratory confirmed
- *Probable*: a clinically compatible case that is epidemiologically linked to a confirmed case in an outbreak

Comment

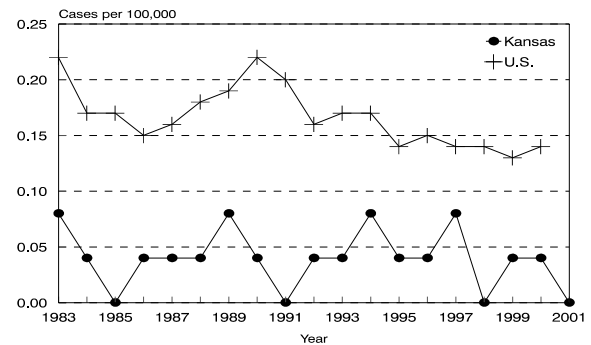
- Isolation of the organism is required for confirmation. Serologic evidence alone is not sufficient for diagnosis. Asymptomatic carriage should *not* be reported as typhoid fever. Isolates of *S. typhi* are sent to the Kansas Health and Environmental Laboratory.

Epidemiology and Trends

2001 Case Total 0
 U.S. rate (2000) 0.1 per 100,000

In 2001, there were no cases of typhoid fever reported. Ten cases of typhoid fever were reported in Kansas for the ten year period 1991-2000; 0-2 cases were reported annually.

Typhoid fever incidence rate by year of report
 Kansas, 1983-2001



The following diseases are reportable, but had no cases reported in 2001.

Disease	Year last case reported
• Anthrax	1972
• Botulism	1996
• Chancroid	1998
• Cholera	1988
• Diphtheria	1964
• Encephalitis, infectious	1999
• Hantavirus Pulmonary Syndrome	2000
• Hemolytic uremic syndrome, postdiarrheal	2000
• Leprosy (Hansen's Disease)	1999
• Measles (rubeola)	2000
• Plague	Unknown
• Poliomyelitis*	1967
• Psittacosis	1992
• Q Fever	Unknown
• Rabies, human	1968
• Rocky Mountain Spotted Fever	2000
• Smallpox	1949
• Trichinosis	1999
• Varicella (chicken pox) deaths	Unknown
• Viral hemorrhagic fever	Unknown
• Yellow fever	Unknown

*Poliomyelitis caused by wild virus has been considered eradicated from the Western hemisphere since 1979. A worldwide polio eradication effort is currently underway.

SECTION II

SPECIAL PROJECTS

ANTIMICROBIAL SUSCEPTIBILITY PATTERNS IN KANSAS

A Non-Scientific Review of Antibigram Data from Kansas Microbiology Laboratories

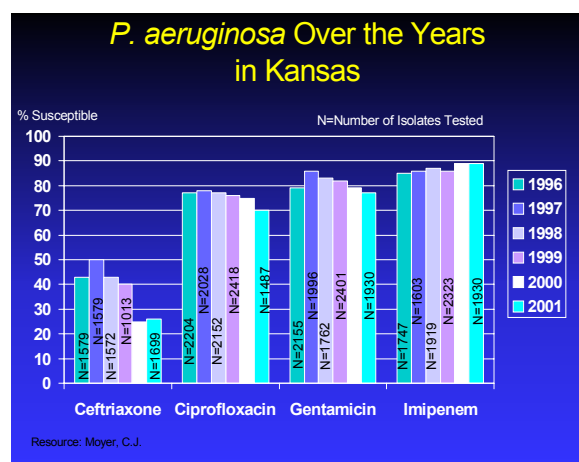
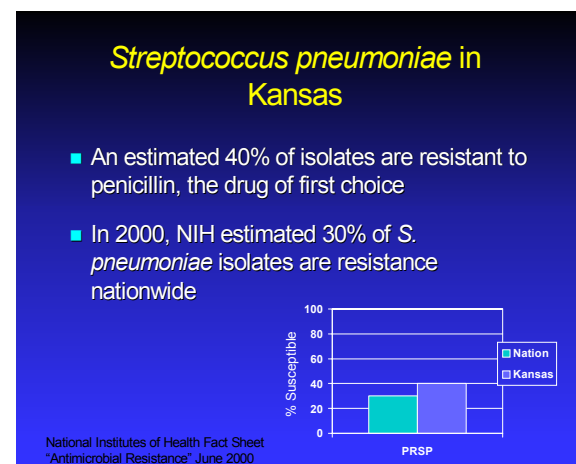
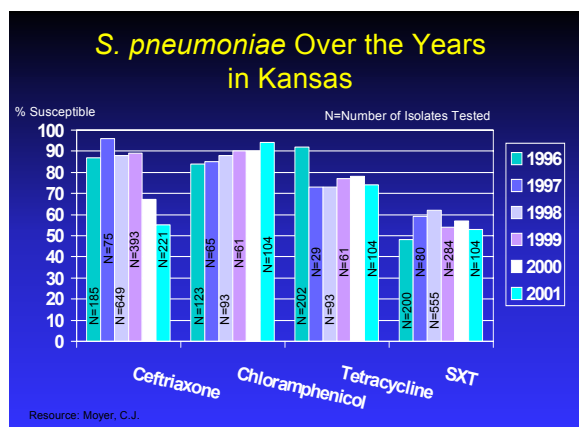
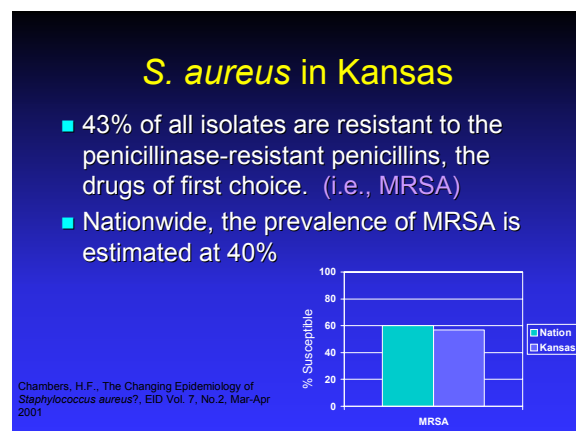
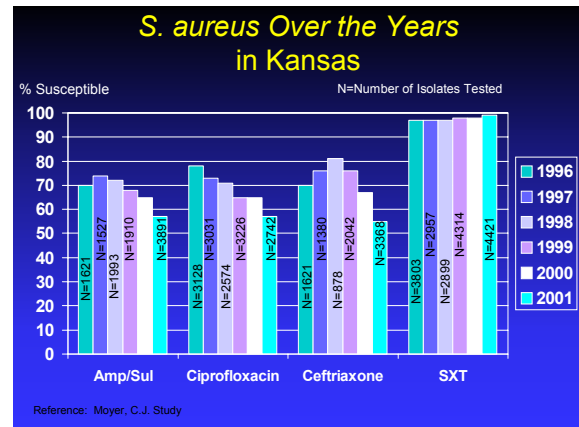
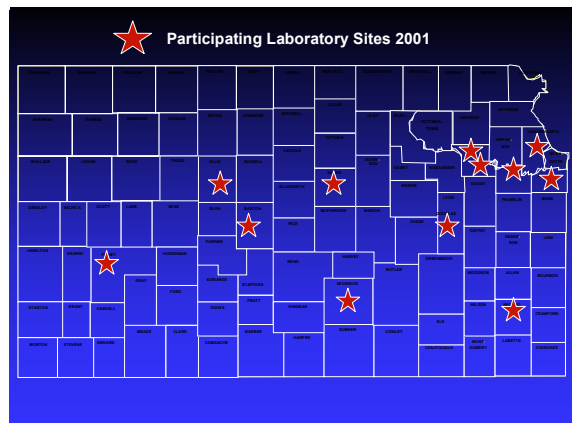
Background: The emergence of increasingly resistant microorganisms poses a great threat to public health, due in part to the overuse and misuse of antimicrobials. Antimicrobial resistance patterns can vary by locale and patient population. As microbes become more resistant, so grows the need for local and state-specific resistance data. Active surveillance of resistance patterns is costly, resource intensive, and requires standardization of testing and reporting. A passive surveillance system utilizes data already being collected by laboratories, and can accurately reflect resistance trends over time.

Objective: To evaluate the effectiveness of passive sentinel surveillance in Kansas as a low-cost method of documenting trends of resistance in major pathogens.

Methods: Antibigram data was solicited from laboratories between the period of 1996 (n=6 sites) to 2001 (n=12 sites). The laboratories varied in testing methodology and reporting criteria, but followed the NCCLS guidelines in breakpoint determination. Data was aggregated, and percent susceptible calculated. Three major pathogens were reviewed for susceptibility patterns for the primary and alternative antimicrobial therapies of choice.

Results: Susceptibility trends for *Staphylococcus aureus*, *Streptococcus pneumoniae*, and *Pseudomonas aeruginosa* were evaluated. Results indicated decreasing susceptibility over time in all drugs of first choice, and most alternative treatments.

Conclusions: The data correlates to national trends. Passive surveillance can be an effective tool in the monitoring local and state-specific of trends of resistance, and as an educational tool in the promotion of judicious antimicrobial usage in Kansas.



Analysis of *P. aeruginosa* data in Kansas

- In 2001, 30% of isolates were resistant to Ciprofloxacin, the drug of first choice
- Between 1996-2001, decreasing sensitivity is seen in 3 of 4 classes
 - ◆ Ceftriaxone ↓ 24%
 - ◆ Ciprofloxacin ↓ 8%
 - ◆ Gentamicin ↓ 9%

Kansas Bioterrorism Preparedness and Response 2001

The unfortunate and tragic events of September 11, 2001 led to a nationwide evaluation of our readiness to deal with terrorism of all types. Public health programs have long been focused on disease surveillance and investigation. But after September 11th, it became clear that more planning, more resources and more focus are needed if we are to effectively confront the threat of terrorism.

The Centers for Disease Control and Prevention (CDC) began the process of assessing states' response systems to enhance bioterrorism readiness. In Kansas, state-level public health functions are carried out by the Kansas Department of Health and Environment (KDHE). While many areas of the agency contribute to critical public health needs, the Bureau for Epidemiology and Disease Prevention and the Kansas Division of Health and Environmental Laboratories have especially important roles in bioterrorism preparedness, surveillance and response.

Shortly after September 11th, concern over anthrax in the mail and a flood of "white powder" scares taxed Kansas' ability to respond and highlighted the need for a better system. Although all environmental samples collected in Kansas tested negative for anthrax, KDHE responded to 1,150 phone calls about possible exposures.

By the end of 2001, KDHE was underway with a multi-layered evaluation of Kansas public health emergency planning. Early successes include:

- The establishment of a Bioterrorism Program at KDHE
- Successful planning and completion of a statewide Bioterrorism Response Exercise
- Enhanced Internet-based information available through the KDHE website
- Improvements to the Statewide Health Alert Network

Kansas has 2.7 million residents spread among 105 counties, ranging from dense urban areas in the east to sparse rural expanses in the west. State cooperation with local health departments, local emergency response officials and local public safety agencies will provide the most rapid and effective avenue to strengthen public health readiness and emergency response. KDHE is building a bioterrorism program into its state level operations, with a key focus on linking state and federal resources with local partners.

HEPATITIS C IN KANSAS

Background: Hepatitis C is the most common chronic bloodborne viral infection in the United States and the leading cause for liver transplant. Because of the extended disease progression, many do not know of their infected status. Many individuals were infected in their youth, by at-risk behaviors and/or blood exposure. Decades later, individuals are experiencing symptoms of chronic liver disease and public health is experiencing the burden of HCV disease.

Objective: Kansas HCV surveillance data can be used to help determine the placement of HCV services in the state.

Methods: Since February 2000 chronic HCV has been a laboratory reportable disease in Kansas. Laboratories are required to report to the state epidemiology section probable and confirmed cases of HCV. Patient information is collected, and extended information fields can be completed. This data can then be investigated further to help identify routes of transmission and at-risk behaviors. Examining the data by county and community will help place appropriate public health services where they are needed most.

Conclusion: Evaluation of HCV data will help determine communities with the highest prevalence rates. These areas will then be considered for the location of pilot programs, which will be integrated into existing public health services. By identifying the specific needs of a community, education and intervention can take place that will reduce the burden of disease for that community. HAWK surveillance data will continue to steer the efforts of the program and help estimate the burden of disease in Kansas due to HCV.

Chronic HCV In Kansas

- Reportable Disease since Feb. 2000
- Total Number of cases identified in Kansas is 2027* (Feb, 2000 – May, 2002)

*Kansas HAWK Surveillance Data

Prevalence In Kansas

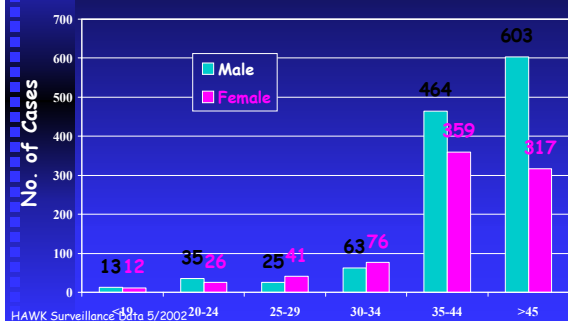
(Feb, 2000 – May, 2002)

- Kansas 2000 Census
Total Population = 2,688,418*
- #Chronic cases = 2,027**
documented in HAWK
- % Prevalence in KS = 0.08%

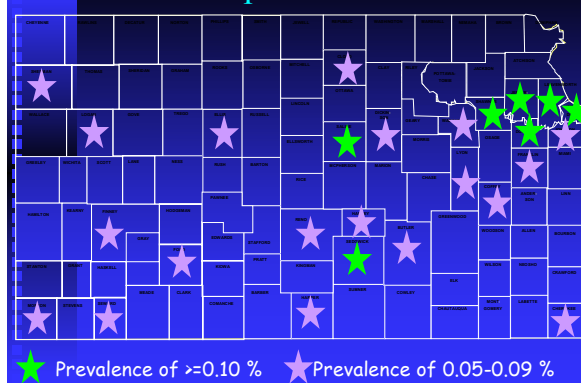
*U.S. Census Bureau 2000

** KS HAWK Surveillance Data

Prevalence In Kansas by Age and Gender



Hepatitis C in Kansas



How Can We Serve Kansans?

- By Using HAWK Surveillance Data to Determine Where:
 - To place testing and counseling locations
 - Gather Referral & Resource Information
 - Target Disease Education

NORWALK-LIKE VIRUS IN KANSAS

Epidemiology of NLVs

- Worldwide distribution throughout the year.
- All age groups affected in both open and closed populations.
- Estimated to account for 11% of all acute primary gastroenteritis.
- Estimated to account for 11% of hospitalizations and fatal cases due to viral gastroenteritis annually.

Clinical Features

- Incubation period: Average of 24 to 48 hours, range of 12 to 96 hours.
- Symptoms:
 - Nausea
 - Vomiting
 - Abdominal cramps
 - Diarrhea
 - Fever
 - Headache.
- Recovery: Average of 24 to 48 hours, range of 12 to 60 hours. (Self-limiting)

Mode of Transmission

- Spread primarily through fecal-oral route.
- Person-to-person transmission.
- Aerosolized virus-containing vomitus.
- Fomites.

Foodborne Transmission

- Among cases of foodborne illness due to known agents in the U.S., NLVs are estimated to account for
 - 67% of all foodborne illnesses
 - 33% of hospitalizations
 - 7% of deaths.
- NLVs are becoming known as the leading causes of foodborne disease in the U.S.

Characteristics of NLVs That Facilitate Their Spread During Epidemics

CHARACTERISTIC

OBSERVATION

- | | |
|-----------------------------------|---|
| ▪ Low infectious dose | ▪ $< 10^2$ viral particles |
| ▪ Prolonged asymptomatic shedding | ▪ About 2 weeks |
| ▪ Environmental stability | ▪ Survives < 10 ppm chlorine, freezing, and heating to 60 C |
| ▪ Substantial strain diversity | ▪ Multiple genetic and antigenic types |
| ▪ Lack of lasting immunity | ▪ Disease can occur with reinfection |

Source: CDC MMWR June 1, 2001 / Vol. 50 / No. RR-9

NLVs in Kansas

- 6 NLV outbreaks detected in 2001
 - 4 related to commercial restaurants
 - 1 related to food prepared in individual home
 - 1 related to nursing home
- 256 people affected
 - 22 confirmed with Human Calicivirus (NLV)
 - 234 suspect cases

PREVENTION: Good Handwashing

- Use soap and warm, running water.
- Rub hands together vigorously for 20 seconds.
- Wash all surfaces
 - Backs of hands
 - Wrists
 - Between fingers
 - Tips of fingers
 - Under fingernails.
- Rinse hands well.
- Dry hands with a paper towel.



PREVENTION: Other Practices

- No bare hand contact with ready-to-eat food.
 - Deli Tissue
 - Spatulas
 - Tongs
 - Single-use gloves
 - Dispensing equipment
- Exclusion of ill employees.
- Disinfection of washrooms and surfaces.
- Proper disposal of sewage and fecally contaminated material.

Recommended Resources

- "Norwalk-Like Viruses"
 - MMWR June 1, 2001 / Vol. 50 / No. RR-9 *Emerging Infectious Diseases*
 - <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5009a1.htm>
- "Food-Related Illness and Death in the United States"
 - *Emerging Infectious Diseases*. Vol. 5, No. 5, September-October 1999.
 - <http://www.cdc.gov/ncidod/eid/vol5no5/mead.htm>
- "Bad Bug Book"
 - USDA – Foodborne Pathogenic Microorganisms and Natural Toxins Handbook
 - <http://vm.cfsan.fda.gov/~mow/intro.html>

RETROSPECTIVE IMMUNIZATION COVERAGE SURVEY*

1996-1997 Results (School Year 2000-2001)

The Kansas Immunization Certificates (KCI) for children five-years of age enrolled in a kindergarten class in a Kansas public school during the 2000-2001 school year were collected and evaluated for immunization coverage rates. The children included in this survey were born between September 2, 1994, and September 1, 1995, and the coverage rates refer to when they were two years old, which was between September 2, 1996, and September 1, 1997. The results for this survey were measured against similar previous studies.

All 773 Kansas public schools were invited to participate. Thirty-one schools were not included in the data analysis because two had no kindergarten class and twenty-nine failed to respond. All 105 counties in Kansas were represented in this survey. A representative sample of 11,267 complete KCIs was analyzed.

Coverage rates for the entire state of Kansas and individual counties were calculated for 4 doses of diphtheria, tetanus, and pertussis (DTP4), 3 doses of polio (Polio3), 1 dose of measles, mumps, and rubella (MMR1), 3 doses of *H. influenzae* (HIB3), 3 doses of Hepatitis B (HEPB3), 1 dose of varicella, and the combination of DTP4, Polio3, and MMR1 (4-3-1 combination). The statewide coverage rate for the 4-3-1 combination was 77%, a statistically significant increase from the value of 75% observed the previous year. Statistically significant increases in coverage rates were also present for DTP4, Polio3 and HepB3.

As in previous years, coverage rates were also calculated at 4, 6, 8, 17, and 20 months of age in order to determine at what age coverage rates begin to decrease. At 4 months of age, 92% of children were up-to-date for immunizations. However, as the number of immunizations required increased at each age point, the coverage rates decreased. Immunization coverage rates declined by 10 percentage points between 4 and 6 months. Rates dropped another 11 percentage points between 6 and 8 months. After 8 months of age coverage rates slightly increased at 20 months and then again at 24 months.

Overall, Kansas immunization coverage rates have steadily increased from 57% in 1990-91 to 77% in 1996-97 for the 4-3-1 combination. Continued assessment and evaluation of immunization rates are necessary to monitor progress toward the Healthy Kansas 2000 90% immunization coverage goal.

* The complete report is available at www.kdhe.state.ks.us/epi.

SECTION III

APPENDICES

LIST OF REPORTABLE DISEASES IN KANSAS, 2001

Reportable by health care providers, hospitals, and laboratories

(K.S.A. 65-118, 65-128, 65-6001 through 65-6007, K.A.R. 28-1-2, 28-1-4, 28-1-18)

- Acquired Immune Deficiency Syndrome (AIDS)
- Amebiasis
- **Anthrax**
- **Botulism**
- Brucellosis
- Campylobacteriosis
- **Chancroid**
- Chlamydia trachomatis infection
- **Cholera**
- Cryptosporidiosis
- Diphtheria
- Ehrlichiosis
- Encephalitis, infectious (indicate infectious agent whenever possible)
- *Escherichia coli* O157:H7 and other enterohemorrhagic, enteropathogenic and enteroinvasive *E. coli* ¶
- Giardiasis
- Gonorrhea
- *Haemophilus influenzae*, invasive disease
- Hantavirus pulmonary syndrome
- Hemolytic uremic syndrome, postdiarrheal
- Hepatitis, viral (acute and chronic)
- Human Immunodeficiency Virus (HIV)
- Legionellosis
- Leprosy (Hansen's disease)
- Listeriosis
- Lyme disease
- Malaria
- **Measles** (rubeola)
- **Meningitis**, bacterial
- **Meningococcemia** ¶
- **Mumps**
- **Pertussis** (whooping cough)
- **Plague**
- **Poliomyelitis**
- Psittacosis
- **Q Fever**
- **Rabies, human and animal**
- Rocky Mountain Spotted Fever

- **Rubella**, including congenital rubella syndrome
- Salmonellosis, including typhoid fever ¶
- Shigellosis ¶
- **Smallpox**
- Streptococcal invasive disease, Group A *streptococcus* or *Streptococcus pneumoniae* ¶
- Syphilis, including congenital syphilis
- Tetanus
- Toxic shock syndrome, streptococcal and staphylococcal
- Trichinosis
- **Tuberculosis** ¶
- Tularemia
- Varicella (chickenpox) deaths
- **Viral hemorrhagic fever**
- Yellow Fever

Outbreaks, unusual occurrence of any disease, exotic or newly recognized diseases, and suspected acts of terrorism should immediately be reported by telephone: 1-877-427-7317 (toll free).

Bold -- Immediate telephone report of *suspect or confirmed* cases required to KDHE toll free at: 1-877-427-7317.

¶ Isolates must be sent to the Kansas Health and Environmental Laboratory.

Division of Health and Environmental Laboratories
 Kansas Department of Health and Environment
 Forbes Field, Building #740
 Topeka, Kansas 66620-0001
 Tel: (785) 296-1636

Disease Reporting and Public Health Emergencies:

- Toll-Free Phone 1-877-427-7317
- Toll-Free Fax 1-877-427-7318

Additional conditions reportable by laboratories (K.A.R. 28-1-18 effective August 16, 1993 and 28-1-18 effective February 18, 2000)

- Blood lead level (\$10 : g/dL for children <18 years of age; \$25: g/dL for persons ≥ 18 years of age).
- CD4+ T-lymphocyte count <500/1 or CD4+ T-lymphocyte <29% of total lymphocytes.

Additional conditions reportable by hospitals (K.A.R. 28-1-4 effective May 1, 1986 and 28-1-22 effective December 24, 1990)

- Cancer
- Congenital malformations in infants under one year of age
- Fetal alcohol syndrome

LIST OF REPORTABLE DISEASES IN KANSAS, 2002

REPORTABLE DISEASES IN KANSAS for health care providers, hospitals, and laboratories (K.S.A. 65-118, 65-128, 65-6001 through 65-6007, K.A.R. 28-1-2, 28-1-18)

Acquired Immune Deficiency Syndrome (AIDS);	<i>Measles</i> (rubeola);
Amebiasis;	<i>Meningitis</i> , bacterial;
Anthrax;	<i>Meningococcemia</i> ; ¶
Botulism;	<i>Mumps</i> ;
Brucellosis;	<i>Pertussis</i> (whooping cough);
Campylobacter infections;	<i>Plague</i> ;
Chancroid;	<i>Poliomyelitis</i> ;
<i>Chlamydia trachomatis</i> genital infection;	Psittacosis;
Cholera;	Q Fever;
Cryptosporidiosis;	Rabies, human and animal;
Diphtheria;	Rocky Mountain Spotted Fever;
Ehrlichiosis;	Rubella , including congenital rubella syndrome;
Encephalitis, infectious;	Salmonellosis, including typhoid fever; ¶
<i>Escherichia coli</i> O157:H7 and other enterohemorrhagic,	Shigellosis; ¶
enteropathogenic and enteroinvasive <i>E. coli</i> ; ¶	Smallpox;
Giardiasis;	Streptococcal invasive disease, Group A
Gonorrhea;	<i>Streptococcus</i> or <i>Streptococcus pneumoniae</i> ; ¶
<i>Haemophilus influenza</i> , invasive disease;	Syphilis, including congenital syphilis;
Hantavirus Pulmonary Syndrome;	Tetanus;
Hemolytic uremic syndrome, post-diarrheal;	Toxic shock syndrome, streptococcal and
Hepatitis, viral (acute and chronic);	staphylococcal
Human Immunodeficiency Virus (HIV) ;	Trichinosis;
Legionellosis;	Tuberculosis ; ¶
Leprosy (Hansen disease);	Tularemia;
Listeriosis;	Varicella (chickenpox) deaths;
Lyme disease;	Viral hemorrhagic fever;
Malaria;	Yellow fever.

Bold--Immediate telephone report of *suspect* or *confirmed* cases to KDHE toll free at 1-877-427-7317.

¶ Isolates must be sent to: Division of Health and Environmental Laboratories, Kansas Department of Health and Environment, Forbes Field, Building #740, Topeka, KS 66620-0001, (785) 296-1636.

Outbreaks, unusual occurrence of any disease, exotic or newly recognized diseases, and suspect acts of terrorism should immediately be reported by telephone: 1-877-427-7317 (toll free).

In addition, laboratories must report:

Blood lead level (\$10 : g/dl for children <18 years; \$25 : g/dl for persons \$18 years)
CD4+ T-lymphocyte count < 500/ : l or CD4+ T-lymphocytes <29% of total lymphocytes

Mail reports to your local health department or to: BEDP - Epidemiologic Services Section, 900 SW Jackson, Suite 1051, Topeka, KS 66612-1290. Reports can also be faxed to: 1-877-427-7318 (toll free).

For more information contact your local health department or call the Kansas Department of Health and Environment, Bureau of Epidemiology and Disease Prevention at: 785-296-2951.

(Rev 1/01)

KANSAS NOTIFIABLE DISEASE FORM

Patient's Name: _____
Last
First
Middle

Patient's Occupation:_____

Day Phone: _____ **Evening Phone:** _____

Address:

City: _____ Zipcode: _____ County: _____

Race: Native American Asian Black Pacific Islander White **Hispanic:** Y N

Sex: M F **Date of Birth:** / / **Age:**

Disease:

Dates:
onset: ____ / ____ / ____ diagnosis: ____ / ____ / ____ first reported to you: ____ / ____ / ____

Physician name: _____ **Physician Phone:** _____

Outbreak associated?		Died?		Hospitalized?	
Y	N	Y	N	Y	N

Hospital: _____ City where hospital located: _____

Laboratory results attached? Y N

Person reporting: _____ **Phone:** _____

Today's Date: / /

Comments:

Mail reports to your local health department or to: BEDP - Epidemiologic Services Section, 1000 SW Jackson, Suite 210, Topeka, KS 66612-1274. Reports can also be ***faxed toll free*** to: 1-877-427-7318.

MAP OF KANSAS

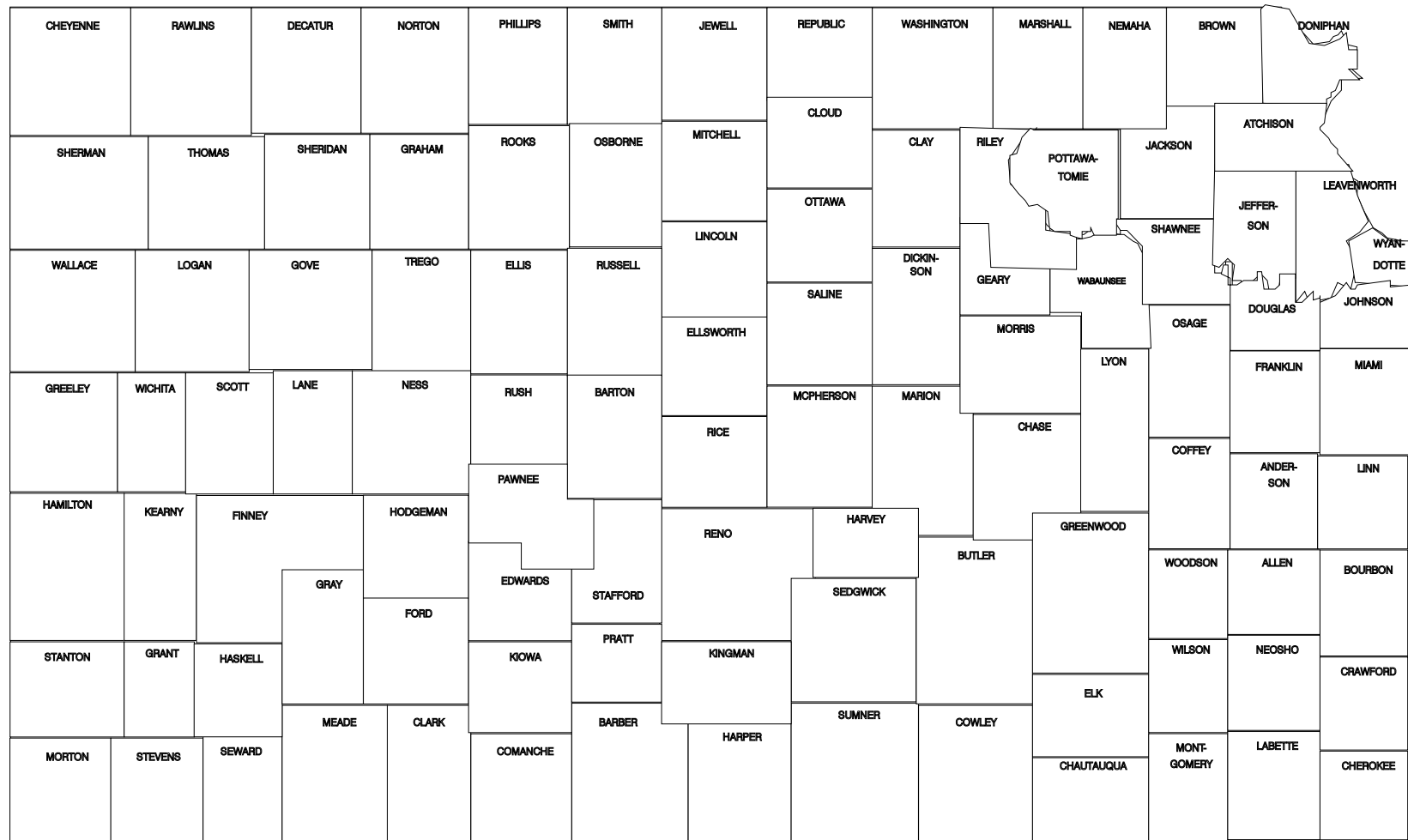


TABLE 1. CASES OF REPORTABLE DISEASES BY YEAR IN KANSAS, 1992-2001

DISEASE	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
AIDS/HIV*	188	358	227	286	135	145	87	127	289	158
AMEBIASIS	1	22	15	2	8	9	5	9	5	2
ANTHRAX	0	0	0	0	0	0	0	0	0	0
BOTULISM, FOODBORNE	0	0	0	1	0	0	0	0	0	0
BOTULISM, INFANT	1	0	2	0	1	0	0	0	0	0
BOTULISM, OTHER	0	0	0	0	0	0	0	0	0	0
BRUCELLOSIS	0	0	0	0	1	0	0	0	1	1
CAMPYLOBACTERIOSIS	253	201	247	238	208	200	351	290	355	286
CHANCROID	3	1	5	2	2	0	1	0	0	0
CHLAMYDIA	7024	5694	6393	5315	4448	4698	5446	6093	6057	6172
CHOLERA	0	0	0	0	0	0	0	0	0	0
CRYPTOSPORIDIOSIS	-	-	1	31	11	14	11	2	9	4
DIPHTHERIA	0	0	0	0	0	0	0	0	0	0
<i>E. coli</i> O157:H7	4	11	25	29	33	30	39	31	31	28
EHRlichiosis**	-	-	-	-	-	-	-	-	0	5
ENCEPHALITIS, INFECTIOUS	5	7	7	11	2	2	1	1	0	0
ENCEPHALITIS, SLE	0	0	0	0	0	0	0	0	0	0
ENCEPHALITIS, WEE	0	0	0	0	0	0	0	0	0	0
GIARDIASIS	521	385	415	395	237	230	226	220	205	178
GONORRHEA	4404	3710	3682	2797	2043	2094	2574	2665	2795	2761

* HIV became reportable in July, 1999.

**Ehrlichiosis became reportable in 2000.

134 **TABLE 1. CASES OF REPORTABLE DISEASES BY YEAR IN KANSAS, 1992-2001**

DISEASE	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
HANSEN'S DISEASE	0	0	0	0	0	0	0	1	0	0
HANTAVIRUS PULM. SYN.	-	1	4	0	2	2	2	2	1	0
HEPATITIS A	141	79	111	162	393	262	109	66	111	181
HEPATITIS B, ACUTE	66	65	31	53	32	32	28	17	27	14
HEP, C/NON-A NON-B, ACUTE	16	16	18	18	16	13	2	1	9	8
LEAD \$ 10 : g/dL	-	545	1034	1202	1171	779	886	770	94	262
LEGIONELLOSIS	5	7	6	8	6	7	11	0	4	1
LISTERIOSIS***	-	-	-	-	-	-	-	-	0	5
LYME DISEASE	18	55	17	23	36	4	11	16	17	2
MALARIA	6	3	7	3	7	4	10	5	7	6
MEASLES	1	2	1	1	1	0	0	0	2	0
MENINGITIS, HIB	12	4	3	2	3	0	1	2	0	0
MENINGITIS, OTHER	21	26	42	9	18	52	25	28	22	22
MENINGOCOCCAL DISEASE	17	36	28	28	27	26	37	23	11	15
MUMPS	3	1	1	0	2	1	2	3	0	2
PERTUSSIS	34	24	18	23	14	33	71	49	18	11
PLAGUE	0	0	0	0	0	0	0	0	0	0
POLIOMYELITIS	0	0	0	0	0	0	0	0	0	0
PSITTACOSIS	1	0	0	0	0	0	0	0	0	0
RABIES, ANIMAL	374	79	35	46	37	89	99	107	97	100
RABIES, HUMAN	0	0	0	0	0	0	0	0	0	0

***Listeriosis became reportable in 2000.

TABLE 1. CASES OF REPORTABLE DISEASES BY YEAR IN KANSAS, 1992-2001

DISEASE	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
RMSF	5	1	4	4	2	7	3	2	3	0
RUBELLA	4	0	0	1	0	0	36	0	0	1
RUBELLA, CONGENITAL	1	0	0	0	0	0	0	0	0	0
SALMONELLOSIS	304	299	397	363	419	446	363	333	378	314
SHIGELLOSIS	266	208	123	302	112	133	82	89	255	76
STREP. INVASIVE	0	0	0	0	0	1	16	15	30	98
SYPHILIS, P AND S	203	129	74	47	28	32	12	14	6	26
SYPHILIS, CONGENITAL	2	3	2	2	0	0	0	0	1	2
SYPHILIS, ALL STAGES	356	282	188	147	136	174	106	95	67	93
TETANUS	0	2	1	2	0	0	0	1	1	2
TOXIC SHOCK SYNDROME	9	3	5	2	5	1	4	5	6	4
TRICHINOSIS	0	0	0	0	0	0	0	1	0	0
TUBERCULOSIS	56	83	84	89	73	78	56	69	77	80
TULAREMIA	3	3	7	10	3	4	4	2	11	7
TYPHOID FEVER	1	1	2	1	1	2	0	1	1	0
TYPHUS	0	0	0	0	0	0	0	0	0	0
YELLOW FEVER	0	0	0	0	0	0	0	0	0	0

***Listeriosis became reportable in 2000.

COUNTY ABBREVIATIONS

AL	Allen	KW	Kiowa	TH	Thomas
AN	Anderson	LB	Labette	TR	Trego
AT	Atchison	LE	Lane	WB	Wabaunsee
BA	Barber	LV	Leavenworth	WA	Wallace
BT	Barton	LC	Lincoln	WS	Washington
BB	Bourbon	LN	Linn	WH	Wichita
BR	Brown	LG	Logan	WL	Wilson
BU	Butler	LY	Lyon	WO	Woodson
CS	Chase	MN	Marion	WY	Wyandotte
CQ	Chatauqua	MS	Marshall		
CK	Cherokee	MP	McPherson		
CN	Cheyenne	ME	Meade		
CA	Clark	MI	Miami		
CY	Clay	MC	Mitchell		
CD	Cloud	MG	Montgomery		
CF	Coffey	MR	Morris		
CM	Comanche	MT	Morton		
CL	Cowley	NM	Nemaha		
CR	Crawford	NO	Neosho		
DC	Decatur	NS	Ness		
DK	Dickinson	NT	Norton		
DP	Doniphan	OS	Osage		
DG	Douglas	OB	Osborne		
ED	Edwards	OT	Ottawa		
EK	Elk	PN	Pawnee		
EL	Ellis	PL	Phillips		
EW	Ellsworth	PT	Pottawatomie		
FI	Finney	PR	Pratt		
FO	Ford	RA	Rawlins		
FR	Franklin	RN	Reno		
GE	Geary	RP	Republic		
GO	Gove	RC	Rice		
GH	Graham	RL	Riley		
GT	Grant	RO	Rooks		
GY	Gray	RH	Rush		
GL	Greeley	RS	Russell		
GW	Greenwood	SA	Saline		
HM	Hamilton	SC	Scott		
HP	Harper	SG	Sedgwick		
HV	Harvey	SW	Seward		
HS	Haskell	SN	Shawnee		
HG	Hodgeman	SD	Sheridan		
JA	Jackson	SH	Sherman		
JF	Jefferson	SM	Smith		
JW	Jewell	SF	Stafford		
JO	Johnson	ST	Stanton		
KE	Kearny	SV	Stevens		
KM	Kingman	SU	Sumner		

TABLE 2. CASES OF REPORTABLE DISEASES BY COUNTY IN KANSAS, 2001

	* AL	AN	AT	BA	BB	* BR	BT	BU	CA	CD	* CF	CK	CL	CM	CN	*
AIDS/HIV	* 0	*	0	*	0	* 0	*	0	0	0	* 0	*	*	0	0	*
AMEBIASIS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
BRUCELLOSIS	* 0	0	0	0	0	* 0	1	0	0	0	* 0	0	0	0	0	*
CAMPYLOBACTERIOSIS	* 1	1	0	0	3	* 0	4	6	0	0	* 0	0	3	4	0	*
CHLAMYDIA	* 17	4	26	1	26	* 17	36	83	3	7	* 13	16	59	2	2	*
CRYPTOSPORIDIOSIS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
<i>E. coli</i> , ENTEROPATHOGENIC	* 0	2	0	0	1	* 0	2	1	0	0	* 0	0	0	0	0	*
EHRlichiosis	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
GIARDIASIS	* 2	1	1	0	3	* 0	4	4	0	0	* 0	0	1	0	0	*
GONORRHEA	* 2	0	14	0	1	* 0	4	12	2	0	* 1	2	21	0	0	*
<i>H. influenzae</i> , INVASIVE	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
	*					*					*					*
HEPATITIS A	* 1	0	0	0	0	* 0	15	2	0	0	* 0	0	0	0	0	*
HEPATITIS B, ACUTE	* 0	0	0	0	1	* 0	0	0	0	0	* 0	0	0	0	0	*
HEPATITIS B, CHRONIC	* 0	0	1	0	4	* 2	0	4	0	1	* 1	1	4	0	0	*
HEPATITIS C, ACUTE	* 0	0	0	0	1	* 0	0	0	0	0	* 0	0	0	0	0	*
HEPATITIS C, CHRONIC	* 2	1	2	0	0	* 2	3	23	0	5	* 2	4	9	0	0	*
HEPATITIS D	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
LEAD \$ 10 :g/dL	* 1	0	3	0	4	* 1	0	0	0	1	* 0	2	7	0	0	*
LEGIONELLOSIS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
LISTERIOSIS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
LYME DISEASE	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
MALARIA	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
MENINGITIS, BACTERIAL	* 0	0	0	0	0	* 0	0	1	0	0	* 0	0	0	0	0	*
MENINGOCOCCAL DISEASE	* 1	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
	*					*					*					*
MUMPS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
PERTUSSIS	* 0	0	0	0	1	* 0	0	0	0	0	* 0	0	0	0	0	*
RABIES, ANIMAL	* 0	0	0	1	0	* 0	0	5	2	0	* 0	0	3	2	0	*
RUBELLA	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
SALMONELLOSIS	* 0	1	3	2	2	* 1	4	6	0	2	* 0	4	2	1	0	*
SHIGELLOSIS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
INVASIVE STREP.	* 0	0	0	0	0	* 0	2	6	0	0	* 0	0	0	0	0	*
SYPHILIS, P AND S	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
SYPHILIS, ALL STAGES	* 0	0	0	0	0	* 0	2	7	0	0	* 0	0	0	0	0	*
TETANUS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
TOXIC SHOCK SYNDROME	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
TUBERCULOSIS	* 0	0	0	0	0	* 0	1	0	0	0	* 0	1	0	0	0	*
TULAREMIA	* 0	0	0	0	0	* 0	0	1	0	0	* 0	0	0	0	0	*

*Counties which reported fewer than 5 cases. Not reported to protect confidentiality.

TABLE 2. CASES OF REPORTABLE DISEASES BY COUNTY IN KANSAS, 2001

	* CQ	CR	CS	CY	DC	* DG	DK	DP	ED	EK	* EL	EW	FI	FO	FR	*
AIDS/HIV	* *	*	0	0	0	* 6	0	0	0	0	* 0	0	0	*	0	*
AMEBIASIS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
BRUCELLOSIS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
CAMPYLOBACTERIOSIS	* 1	8	1	1	1	* 16	8	1	1	1	* 6	1	14	11	2	*
CHLAMYDIA	* 2	85	1	8	0	* 289	19	8	3	5	* 44	0	126	89	40	*
CRYPTOSPORIDIOSIS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	1	0	0	*
<i>E. coli</i> , ENTEROPATHOGENIC	* 0	0	0	0	0	* 3	0	0	0	0	* 1	0	1	0	0	*
EHRlichiosis	* 0	0	0	0	0	* 0	0	1	0	0	* 0	0	0	0	0	*
GIARDIASIS	* 0	2	1	1	0	* 6	4	1	0	0	* 0	0	5	2	3	*
GONORRHEA	* 0	7	0	2	0	* 89	7	1	0	0	* 2	2	25	25	3	*
<i>H. influenzae</i> , INVASIVE	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
	*					*					*					*
HEPATITIS A	* 0	0	1	0	0	* 2	0	0	0	0	* 0	0	1	1	0	*
HEPATITIS B, ACUTE	* 0	0	0	0	0	* 2	0	0	0	0	* 0	0	0	1	0	*
HEPATITIS B, CHRONIC	* 0	6	0	0	0	* 9	0	1	0	0	* 4	0	4	3	1	*
HEPATITIS C, ACUTE	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
HEPATITIS C, CHRONIC	* 0	7	0	2	0	* 48	7	2	0	1	* 1	0	16	16	10	*
HEPATITIS D	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
LEAD \$ 10 : g/dL	* 1	2	0	0	0	* 0	1	0	0	0	* 1	0	0	0	3	*
LEGIONELLOSIS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
LISTERIOSIS	* 0	0	0	0	0	* 2	0	0	0	0	* 0	0	0	0	0	*
LYME DISEASE	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
MALARIA	* 0	0	0	0	0	* 1	0	0	0	0	* 0	0	0	0	0	*
MENINGITIS, BACTERIAL	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
MENINGOCOCCAL DISEASE	* 0	0	0	0	0	* 0	1	0	0	0	* 0	0	1	0	0	*
	*					*					*					*
MUMPS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
PERTUSSIS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
RABIES, ANIMAL	* 0	2	0	5	0	* 3	5	0	1	0	* 0	2	0	1	1	*
RUBELLA	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
SALMONELLOSIS	* 3	6	1	2	0	* 7	4	0	0	0	* 6	1	10	8	5	*
SHIGELLOSIS	* 1	0	0	0	0	* 1	0	0	0	0	* 2	0	6	0	0	*
INVASIVE STREP.	* 0	0	0	0	0	* 3	0	0	0	0	* 0	0	1	2	1	*
SYPHILIS, P AND S	* 0	0	0	0	0	* 1	0	0	0	0	* 0	0	2	0	0	*
SYPHILIS, ALL STAGES	* 0	0	0	0	0	* 1	0	0	0	0	* 0	0	6	2	0	*
TETANUS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
TOXIC SHOCK SYNDROME	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
TUBERCULOSIS	* 0	2	0	0	0	* 2	0	0	1	0	* 2	0	0	0	0	*
TULAREMIA	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*

*Counties which reported fewer than 5 cases. Not reported to protect confidentiality.

TABLE 2. CASES OF REPORTABLE DISEASES BY COUNTY IN KANSAS, 2001

	* GE	GH	GL	GO	GT	* GW	GY	HG	HM	HP	* HS	HV	JA	JF	JO	*
AIDS/HIV	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	15	*
AMEBIASIS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	1	*
BRUCELLOSIS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
CAMPYLOBACTERIOSIS	* 1	2	2	1	3	* 0	0	0	0	0	* 1	2	1	2	37	*
CHLAMYDIA	*264	1	0	0	31	* 11	3	2	8	8	* 4	35	6	11	556	*
CRYPTOSPORIDIOSIS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	1	*
<i>E. coli</i> , ENTEROPATHOGENIC	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	6	*
EHRlichiosis	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	1	1	*
GIARDIASIS	* 1	0	0	1	0	* 0	0	2	0	0	* 0	6	0	3	38	*
GONORRHEA	* 70	0	0	0	3	* 2	2	1	0	0	* 0	9	0	3	158	*
<i>H. influenzae</i> , INVASIVE	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
HEPATITIS A	* 1	0	0	0	0	* 0	0	0	0	0	* 0	10	1	1	8	*
HEPATITIS B, ACUTE	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	1	2	*
HEPATITIS B, CHRONIC	* 4	0	0	0	1	* 1	0	0	0	0	* 0	3	0	1	83	*
HEPATITIS C, ACUTE	* 0	0	0	0	0	* 0	0	0	0	0	* 0	1	0	0	0	*
HEPATITIS C, CHRONIC	* 4	1	0	0	2	* 0	1	0	0	4	* 0	12	1	13	120	*
HEPATITIS D	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
LEAD \$ 10 : g/dL	* 2	0	0	0	0	* 2	0	0	0	2	* 0	1	3	0	3	*
LEGIONELLOSIS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
LISTERIOSIS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	2	*
LYME DISEASE	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
MALARIA	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	1	*
MENINGITIS, BACTERIAL	* 1	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	1	*
MENINGOCOCCAL DISEASE	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	2	*
MUMPS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
PERTUSSIS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	3	*
RABIES, ANIMAL	* 0	0	0	0	0	* 2	0	0	1	0	* 0	0	2	1	1	*
RUBELLA	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
SALMONELLOSIS	* 4	0	0	1	2	* 1	1	1	0	0	* 2	4	1	5	37	*
SHIGELLOSIS	* 1	0	0	0	0	* 0	0	0	0	0	* 0	1	0	0	7	*
INVASIVE STREP.	* 0	0	0	0	0	* 1	0	0	0	0	* 0	1	0	0	5	*
SYPHILIS, P AND S	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	1	*
SYPHILIS, ALL STAGES	* 0	0	0	0	1	* 0	0	0	0	0	* 0	0	0	2	8	*
TETANUS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
TOXIC SHOCK SYNDROME	* 1	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	1	*
TUBERCULOSIS	* 0	0	0	0	1	* 0	0	0	0	0	* 0	0	0	0	7	*
TULAREMIA	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	1	0	*

*Counties which reported fewer than 5 cases. Not reported to protect confidentiality.

TABLE 2. CASES OF REPORTABLE DISEASES BY COUNTY IN KANSAS, 2001

	* JW	KE	KM	KW	LB	* LC	LE	LG	LN	LV	* LY	MC	ME	MG	MI	*
AIDS/HIV	* 0	0	0	0	* *	0	0	0	*	7	* 0	0	0	*	0	*
AMEBIASIS	* 0	0	0	0	0 *	0	0	0	0	0	* 0	0	0	0	0	*
BRUCELLOSIS	* 0	0	0	0	0 *	0	0	0	0	0	* 0	0	0	0	0	*
CAMPYLOBACTERIOSIS	* 0	1	2	0	1 *	0	0	1	0	10	* 1	0	0	0	4	*
CHLAMYDIA	* 0	9	4	1	22 *	1	2	2	13	131	* 119	7	1	70	38	*
CRYPTOSPORIDIOSIS	* 0	0	0	0	0 *	0	1	0	0	0	* 0	0	0	0	0	*
<i>E. coli</i> , ENTEROPATHOGENIC	* 0	0	0	0	0 *	0	0	0	0	1	* 0	0	0	0	0	*
EHRlichiosis	* 0	0	0	0	0 *	0	0	0	0	0	* 0	0	0	0	0	*
GIARDIASIS	* 0	0	0	0	0 *	0	0	0	0	1	* 0	1	0	1	1	*
GONORRHEA	* 0	4	0	2	14 *	1	0	1	0	81	* 34	1	0	31	12	*
<i>H. influenzae</i> , INVASIVE	* 0	0	0	0	0 *	0	0	0	0	0	* 0	0	0	0	0	*
	*				*						*					*
HEPATITIS A	* 0	0	0	0	0 *	0	0	0	0	0	* 0	0	0	0	0	*
HEPATITIS B, ACUTE	* 0	0	0	0	0 *	0	0	0	0	0	* 0	0	0	0	0	*
HEPATITIS B, CHRONIC	* 0	0	0	0	5 *	0	0	0	0	17	* 5	0	1	2	0	*
HEPATITIS C, ACUTE	* 0	0	0	0	0 *	0	0	0	0	0	* 0	0	0	0	0	*
HEPATITIS C, CHRONIC	* 0	0	1	0	1 *	0	0	1	1	45	* 10	0	1	14	5	*
HEPATITIS D	* 0	0	0	0	0 *	0	0	0	0	0	* 0	0	0	0	0	*
LEAD \$ 10 : g/dL	* 1	0	0	0	3 *	0	0	0	0	11	* 3	2	0	4	0	*
LEGIONELLOSIS	* 0	0	0	0	0 *	0	0	0	0	0	* 0	0	0	0	0	*
LISTERIOSIS	* 0	0	0	0	0 *	0	0	0	0	1	* 0	0	0	0	0	*
LYME DISEASE	* 0	0	0	0	0 *	0	0	0	0	1	* 0	0	0	1	0	*
MALARIA	* 0	0	0	0	0 *	0	0	0	0	0	* 1	0	0	0	0	*
MENINGITIS, BACTERIAL	* 0	0	0	0	0 *	0	0	0	0	1	* 1	0	0	0	0	*
MENINGOCOCCAL DISEASE	* 0	0	0	0	0 *	0	0	0	0	0	* 1	0	0	0	0	*
	*				*						*					*
MUMPS	* 0	0	0	0	0 *	0	0	0	0	0	* 0	0	0	0	0	*
PERTUSSIS	* 0	0	0	0	0 *	0	0	0	0	0	* 0	0	0	0	0	*
RABIES, ANIMAL	* 0	0	5	1	0 *	3	0	0	0	0	* 1	0	0	1	0	*
RUBELLA	* 0	0	0	0	0 *	0	0	0	0	0	* 0	0	0	0	0	*
SALMONELLOSIS	* 0	1	0	0	3 *	1	0	2	2	5	* 3	0	0	4	3	*
SHIGELLOSIS	* 0	0	0	0	0 *	0	0	0	0	1	* 0	0	0	0	0	*
INVASIVE STREP.	* 0	0	0	0	0 *	0	0	0	0	0	* 0	2	0	1	2	*
SYPHILIS, P AND S	* 0	0	0	0	0 *	0	0	0	0	1	* 0	1	0	0	0	*
SYPHILIS, ALL STAGES	* 0	0	0	0	1 *	0	0	0	0	3	* 1	1	0	1	0	*
TETANUS	* 0	0	0	0	0 *	0	0	0	0	1	* 0	0	0	0	0	*
TOXIC SHOCK SYNDROME	* 0	0	0	0	0 *	0	0	0	0	0	* 0	0	0	1	0	*
TUBERCULOSIS	* 0	0	0	0	0 *	0	0	0	0	4	* 1	1	0	0	0	*
TULAREMIA	* 0	0	0	0	0 *	0	0	0	0	0	* 0	0	0	0	0	*

*Counties which reported fewer than 5 cases. Not reported to protect confidentiality.

TABLE 2. CASES OF REPORTABLE DISEASES BY COUNTY IN KANSAS, 2001

	* MN	MP	MR	MS	MT	* NM	NO	NS	NT	OB	* OS	OT	PL	PN	PR	*
AIDS/HIV	* 0	0	0	0	0	* 0	0	0	*	0	* *	0	0	0	0	*
AMEBIASIS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
BRUCELLOSIS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
CAMPYLOBACTERIOSIS	* 1	3	0	0	0	* 1	0	0	1	0	* 1	1	1	2	1	*
CHLAMYDIA	* 12	19	0	4	1	* 3	28	2	1	1	* 13	2	4	6	12	*
CRYPTOSPORIDIOSIS	* 0	0	1	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
<i>E. coli</i> , ENTEROPATHOGENIC	* 0	1	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
EHRLICHIOSIS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
GIARDIASIS	* 1	8	1	0	1	* 1	2	0	1	0	* 0	0	1	0	1	*
GONORRHEA	* 1	8	0	0	2	* 0	2	1	0	0	* 3	1	1	4	4	*
<i>H. influenzae</i> , INVASIVE	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
	*					*					*					*
HEPATITIS A	* 0	3	0	1	0	* 0	0	0	0	0	* 0	0	0	1	0	*
HEPATITIS B, ACUTE	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
HEPATITIS B, CHRONIC	* 0	1	0	0	1	* 0	2	0	0	0	* 0	0	0	1	0	*
HEPATITIS C, ACUTE	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
HEPATITIS C, CHRONIC	* 1	4	0	1	1	* 0	1	0	0	0	* 5	0	0	0	0	*
HEPATITIS D	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
LEAD \$ 10 : g/dL	* 0	1	0	1	0	* 0	3	1	0	0	* 2	3	0	0	1	*
LEGIONELLOSIS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
LISTERIOSIS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
LYME DISEASE	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
MALARIA	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
MENINGITIS, BACTERIAL	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
MENINGOCOCCAL DISEASE	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
	*					*					*					*
MUMPS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
PERTUSSIS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
RABIES, ANIMAL	* 4	0	1	3	0	* 1	0	0	0	0	* 0	2	0	1	1	*
RUBELLA	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
SALMONELLOSIS	* 1	1	2	0	0	* 0	0	1	1	1	* 4	0	0	1	1	*
SHIGELLOSIS	* 0	1	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
INVASIVE STREP.	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	1	*
SYPHILIS, P AND S	* 0	0	0	0	0	* 0	0	0	0	0	* 1	0	0	0	0	*
SYPHILIS, ALL STAGES	* 0	1	0	0	0	* 0	0	0	0	0	* 1	0	0	0	0	*
TETANUS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
TOXIC SHOCK SYNDROME	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*
TUBERCULOSIS	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	1	0	0	*
TULAREMIA	* 0	0	0	0	0	* 0	0	0	0	0	* 0	0	0	0	0	*

*Counties which reported fewer than 5 cases. Not reported to protect confidentiality.

TABLE 2. CASES OF REPORTABLE DISEASES BY COUNTY IN KANSAS, 2001

	* PT	RA	RC	RH	RL	* RN	RO	RP	RS	SA	* SC	SD	SF	SG	SH	*
AIDS/HIV	* *	0	0	0	* *	5	0	0	*	* *	0	0	0	44	0	*
AMEBIASIS	* 0	0	0	0	0 *	1	0	0	0	0 *	0	0	0	0	0	*
BRUCELLOSIS	* 0	0	0	0	0 *	0	0	0	0	0 *	0	0	0	0	0	*
CAMPYLOBACTERIOSIS	* 4	1	3	1	8 *	9	1	0	1	6 *	2	1	0	26	2	*
CHLAMYDIA	* 10	0	9	2	179*	143	4	4	2	82 *	2	1	3	1547	9	*
CRYPTOSPORIDIOSIS	* 0	0	0	0	0 *	0	0	0	0	0 *	0	0	0	0	0	*
<i>E. coli</i> , ENTEROPATHOGENIC	* 0	0	0	0	0 *	0	0	0	0	0 *	0	0	0	2	1	*
EHRlichiosis	* 0	0	0	0	1 *	0	0	0	0	0 *	0	0	0	0	0	*
GIARDIASIS	* 1	0	0	0	4 *	9	0	0	0	3 *	0	0	0	21	0	*
GONORRHEA	* 2	0	2	0	47 *	36	1	0	0	31 *	0	0	0	857	1	*
<i>H. influenzae</i> , INVASIVE	* 0	0	0	0	1 *	0	0	0	0	0 *	0	0	0	1	0	*
HEPATITIS A	* 0	0	2	0	1 *	75	0	0	0	1 *	0	0	0	23	0	*
HEPATITIS B, ACUTE	* 0	0	0	0	0 *	5	0	0	0	1 *	0	0	0	1	0	*
HEPATITIS B, CHRONIC	* 0	0	1	0	7 *	2	0	0	0	13 *	0	0	0	135	0	*
HEPATITIS C, ACUTE	* 0	0	0	1	0 *	2	0	0	0	0 *	0	0	0	1	0	*
HEPATITIS C, CHRONIC	* 3	0	3	0	10 *	25	0	0	0	24 *	0	0	0	420	2	*
HEPATITIS D	* 0	0	0	0	1 *	0	0	0	0	0 *	0	0	0	0	0	*
LEAD \$ 10 : g/dL	* 0	0	0	0	1 *	2	1	0	0	19 *	0	0	0	16	0	*
LEGIONELLOSIS	* 0	0	0	0	0 *	0	0	0	0	0 *	0	0	0	1	0	*
LISTERIOSIS	* 0	0	0	0	0 *	0	0	0	0	0 *	0	0	0	0	0	*
LYME DISEASE	* 0	0	0	0	0 *	0	0	0	0	0 *	0	0	0	0	0	*
MALARIA	* 0	0	0	0	0 *	0	0	0	0	0 *	0	0	0	2	0	*
MENINGITIS, BACTERIAL	* 0	0	0	0	0 *	0	0	0	0	1 *	0	0	0	6	0	*
MENINGOCOCCAL DISEASE	* 0	0	0	0	1 *	1	0	0	0	2 *	0	0	0	3	0	*
MUMPS	* 0	0	0	0	0 *	0	0	0	0	0 *	0	0	0	2	0	*
PERTUSSIS	* 0	0	0	0	0 *	0	0	0	0	0 *	0	0	0	3	0	*
RABIES, ANIMAL	* 3	0	1	0	10 *	1	0	2	0	8 *	0	0	0	1	0	*
RUBELLA	* 0	0	0	0	0 *	0	0	0	0	0 *	0	0	0	0	0	*
SALMONELLOSIS	* 5	2	1	1	9 *	9	0	2	4	2 *	0	0	0	53	1	*
SHIGELLOSIS	* 0	0	0	0	0 *	1	0	0	0	0 *	0	0	0	14	0	*
INVASIVE STREP.	* 0	0	0	0	1 *	9	0	0	0	3 *	0	0	1	40	1	*
SYPHILIS, P AND S	* 0	0	0	0	0 *	0	0	0	0	0 *	0	0	0	4	0	*
SYPHILIS, ALL STAGES	* 0	0	0	0	1 *	1	0	0	0	0 *	0	0	0	17	0	*
TETANUS	* 0	0	0	0	0 *	0	0	0	0	0 *	0	0	0	1	0	*
TOXIC SHOCK SYNDROME	* 0	0	0	0	0 *	0	0	0	0	0 *	0	0	0	0	0	*
TUBERCULOSIS	* 0	0	0	0	2 *	0	0	0	0	2 *	0	0	0	32	0	*
TULAREMIA	* 1	0	0	0	1 *	0	0	0	0	0 *	0	0	0	0	0	*

*Counties which reported fewer than 5 cases. Not reported to protect confidentiality.

TABLE 2. CASES OF REPORTABLE DISEASES BY COUNTY IN KANSAS, 2001

	* SM	SN	ST	SU	SV	* SW	TH	TR	WA	WB	* WH	WL	WO	WS	WY	* TOTAL
AIDS/HIV	* 0	17	0	*	* *	*	0	0	0	0	* 0	0	0	0	28 *	158
AMEBIASIS	* 0	0	0	0	0 *	0	0	0	0	0 *	0	0	0	0	0 *	2
BRUCELLOSIS	* 0	0	0	0	0 *	0	0	0	0	0 *	0	0	0	0	0 *	1
CAMPYLOBACTERIOSIS	* 1	19	0	1	2 *	1	2	0	0	0 *	0	0	0	1	15 *	286
CHLAMYDIA	* 3	535	0	16	4 *	39	9	5	2	2 *	3	12	5	0	1040 *	6171
CRYPTOSPORIDIOSIS	* 0	0	0	0	0 *	0	0	0	0	0 *	0	0	0	0	0 *	4
<i>E. coli</i> , ENTEROPATHOGENIC	* 0	2	0	1	0 *	0	0	0	0	1 *	0	0	0	0	2 *	28
EHRlichiosis	* 0	1	0	0	0 *	0	0	0	0	0 *	0	0	0	0	0 *	5
GIARDIASIS	* 0	10	0	1	0 *	0	0	0	0	1 *	0	3	0	0	12 *	178
GONORRHEA	* 0	250	0	2	0 *	5	2	4	0	2 *	1	2	0	0	838 *	2761
<i>H. influenzae</i> , INVASIVE	* 0	0	0	0	0 *	0	0	0	0	0 *	0	0	0	0	0 *	2
HEPATITIS A	* 0	19	0	1	1 *	0	0	0	0	0 *	0	0	0	0	9 *	181
HEPATITIS B, ACUTE	* 0	0	0	0	0 *	0	0	0	0	0 *	0	0	0	0	0 *	14
HEPATITIS B, CHRONIC	* 0	21	0	1	0 *	4	0	0	0	0 *	0	1	0	0	31 *	390
HEPATITIS C, ACUTE	* 0	1	0	1	0 *	0	0	0	0	0 *	0	0	0	0	0 *	8
HEPATITIS C, CHRONIC	* 0	133	0	8	0 *	8	1	0	0	3 *	0	2	0	0	88 *	1143
HEPATITIS D	* 0	0	0	0	0 *	0	0	0	0	0 *	0	0	0	0	0 *	1
LEAD \$ 10 : g/dL	* 0	33	0	0	0 *	0	0	0	0	0 *	0	1	0	1	30 *	180
LEGIONELLOSIS	* 0	0	0	0	0 *	0	0	0	0	0 *	0	0	0	0	0 *	1
LISTERIOSIS	* 0	0	0	0	0 *	0	0	0	0	0 *	0	0	0	0	0 *	5
LYME DISEASE	* 0	0	0	0	0 *	0	0	0	0	0 *	0	0	0	0	0 *	2
MALARIA	* 0	1	0	0	0 *	0	0	0	0	0 *	0	0	0	0	0 *	6
MENINGITIS, BACTERIAL	* 0	4	0	0	0 *	0	1	0	0	0 *	0	0	0	1	4 *	22
MENINGOCOCCAL DISEASE	* 0	0	0	0	0 *	0	0	0	0	0 *	0	0	0	0	2 *	15
MUMPS	* 0	0	0	0	0 *	0	0	0	0	0 *	0	0	0	0	0 *	2
PERTUSSIS	* 0	0	0	0	0 *	0	0	0	0	0 *	0	0	0	0	4 *	11
RABIES, ANIMAL	* 0	4	0	1	0 *	1	0	0	0	0 *	0	0	0	4	0 *	100
RUBELLA	* 0	1	0	0	0 *	0	0	0	0	0 *	0	0	0	0	0 *	1
SALMONELLOSIS	* 0	24	0	1	0 *	3	1	1	0	1 *	0	3	0	0	14 *	314
SHIGELLOSIS	* 0	4	0	0	0 *	1	0	0	0	0 *	0	0	0	0	35 *	76
INVASIVE STREP.	* 0	1	0	1	1 *	0	0	0	0	0 *	0	0	0	1	11 *	98
SYPHILIS, P AND S	* 0	13	0	0	0 *	0	0	0	0	0 *	0	0	0	0	2 *	26
SYPHILIS, ALL STAGES	* 0	22	0	0	1 *	1	0	0	0	0 *	0	0	0	0	12 *	93
TETANUS	* 0	0	0	0	0 *	0	0	0	0	0 *	0	0	0	0	0 *	2
TOXIC SHOCK SYNDROME	* 0	0	0	0	0 *	0	0	0	0	0 *	0	0	0	0	1 *	4
TUBERCULOSIS	* 0	4	0	0	0 *	3	0	0	0	0 *	0	1	0	0	10 *	80
TULAREMIA	* 0	3	0	0	0 *	0	0	0	0	0 *	0	0	0	0	0 *	7

*Counties which reported fewer than 5 cases. Not reported to protect confidentiality.

PUBLICATIONS ON DISEASE CONTROL IN KANSAS, 2001

1. Monroe CT, Kuawogai V. Measles (Rubeola) cases in Kansas. Kansas Physician. January 2001.
2. Kansas Department of Health and Environment, Bureau of Epidemiology and Disease Prevention. HIV/AIDS Epidemiology Profile. 2001.
3. Kansas Department of Health and Environment, Bureau of Epidemiology and Disease Prevention. Kansas AIDS/STD Update July 2001.
4. Kansas Department of Health and Environment, Bureau of Epidemiology and Disease Prevention. Kansas STD Report January-December, 2000. 2001.
5. Kansas Department of Health and Environment. Bureau of Epidemiology and Disease Prevention. Kansas Chlamydia Control Project Quarterly Update. 2001.
6. Kansas Department of Health and Environment, Bureau of Epidemiology and Disease Prevention. Retrospective Immunization Coverage Survey, 1996-97 Results (School year 2000-2001). 2001.
7. Kansas Department of Health and Environment, Bureau of Epidemiology and Disease Prevention. Reportable Diseases in Kansas: 2000 Summary. 2001.

REFERENCES

1. Chin J, editor. Control of Communicable Diseases in Man. 17th ed. Washington, D.C.: American Public Health Association; 2000.
2. American Academy of Pediatrics. Peter G, ed. 2000 Red Book: Report of the Committee on Infectious Diseases. 25th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2000.
3. Center for Disease Control and Prevention. Case Definitions for Infectious Conditions Under Public Health Surveillance, 1997. MMWR 1997;46(No. RR-10) .
4. Center for Disease Control and Prevention. Epidemiology and Prevention of Vaccine-Preventable Diseases, 1999. 5th ed.

**Kansas Department of Health and Environment
Division of Health
Bureau of Epidemiology and Disease Prevention
1000 SW Jackson Street, Suite 210
Topeka, KS 66612-1274**

264-57